NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION,
NEW JERSEY OFFICE OF THE ATTORNEY GENERAL, and
NEW JERSEY BOARD OF PUBLIC UTILITIES

October 31, 2018

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The Honorable Andrew R. Wheeler
Acting Administrator
U.S. Environmental Protection Agency
Washington, D.C. 20460

RE: Docket ID No. EPA–HQ–OAR–2017–0355
Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program (Affordable Clean Energy)

Dear Mr. Wheeler:

New Jersey submits these comments in opposition to the U.S. Environmental Protection Agency's (EPA) proposed rule: Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; and Revisions to New Source Review Program, 83 Fed. Reg. 44746 (Aug. 31, 2018), also known as the Affordable Clean Energy (ACE) rule. EPA admits that the proposed rule will increase greenhouse gas (GHG) emissions from existing power plants, despite the clear statutory mandate that the rule is to reflect the best system of emission *reduction* (BSER) for existing sources. With the proposed rule, EPA further abdicates its responsibilities to implement and enforce the Clean Air Act (CAA) by proposing to allow existing power plants to escape the CAA's New Source Review (NSR) requirements, which would result in even greater emissions of air pollutants. EPA's proposed rule is unlawful and would allow power plants, one of the largest sources of GHG emissions, to increase their carbon dioxide (CO_2) emissions at a time when the scientific consensus is clear: we must reduce GHG emissions now if we are to avoid the most catastrophic impacts of climate change for future generations.

New Jersey urges EPA to abandon the proposed rule. The rule, if adopted, would encourage and enable existing power plants to increase capacity, annual use, and years of operation, without best available control technology or any air quality evaluation. Lifetime CO_2 emissions from the power sector would increase because of life cycle extensions at power plants. These increases would overwhelm any CO_2 reductions from marginal energy efficiency improvements at the plant. By doubling the lifetime of an existing power plant, lifetime CO_2 emissions would increase by 100%, compared with the less than 1% decrease in annual CO_2 emissions that EPA estimates might be achieved from the proposed rule. This increase in

lifetime CO_2 emissions is a fatal flaw: an increase in CO_2 emissions runs afoul of the CAA's requirement that the rule be based on the best system of emission reduction.

Simply put, the result of this rule would be more money in the pockets of power plants, while increasing air pollution and decreasing air quality. The proposed NSR exemption would result in actual emission increases, without an evaluation of the public health effects caused by those increases on states and local communities. The emission increases that would result from the proposal threaten public health and welfare and would interfere with States' ability to attain and maintain the National Ambient Air Quality Standards (NAAQS). In other words, EPA proposes to sacrifice public health to enable power plants to increase revenue.

This is especially true in a state with a competitive energy market like New Jersey (a member of the PJM Regional Transmission Organization) where electric generating sources are dispatched in order of lowest cost. By exempting old, high-emitting power plants from requirements to install and run modern pollution controls, the ACE rule distorts the competitive market and incentivizes otherwise uneconomical power plants to run more frequently and for more years at the expense of ratepayers and public health.[1]

As explained below, the proposed rule is flawed and illegal for the following reasons. First, EPA's proposal to revise the NSR program by adopting an hourly emissions test, in contravention of decades of contrary agency interpretation and court precedent, and without regard to the likely significant increases in air pollution, is illegal. Second, EPA's proposed rule is based on a flawed interpretation of the CAA. Third, the proposed rule directly conflicts with the CAA mandate that the standard of performance for existing sources reflect BSER because the proposed rule would increase emissions of GHG and other air pollutants. Fourth, EPA's analysis using the Integrated Planning Model (IPM) produces biased results. And finally, EPA's Regulatory Impact Analysis (RIA) supporting the ACE Rule is flawed. In these respects, New Jersey agrees with comments on the proposal's many defects submitted today by the New York State Attorney General on behalf of more than sixteen states and major American cities.[2]

I. THE THREAT OF CLIMATE CHANGE.

In its Fifth Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) found that "[h]uman influence on the climate system is clear, and recent anthropogenic emissions

[1] Currently there are 19 states across the U.S. that have competitive electric energy markets, and 29 states that have some form of energy competition. *See* American Coalition of Competitive Energy Suppliers, "State by State Information," available at http://competitiveenergy.org/consumer-tools/state-by-state-links (last accessed Oct. 31, 2018).

[2] *See* Comments submitted by the Attorney General of New York State and others on the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program (Oct. 31, 2018), submitted in Docket No. EPA-HQ-OAR-2017-0355.

of greenhouse gases are the highest in history."[3] Climate warming is "unequivocal," as is the undeniable evidence of warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea level. The IPCC found that continued greenhouse gas emissions "will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems." The IPCC projected that it is very likely that heat waves will occur more often and last longer, extreme precipitation events will become more intense and frequent, the ocean will continue to warm and acidify, and the global mean sea level will continue to rise.

On October 6, 2018, the IPCC approved its Summary for Policymakers of its Special Report on Global Warming of 1.5°C.[4] The IPCC reports that warming from anthropogenic emissions will persist for hundreds or thousands of years and continue to cause further long-terms climate changes, such as sea level rise, with related impacts. The IPCC also found that climate change risks are higher for global warming of 1.5°C than at present, but lower than at 2°C. If the global community takes immediate and drastic steps to limit GHG emissions, we can conceivably limit global warming to 1.5°C. Compared to 2°C warming, the impacts of 1.5°C on biodiversity and ecosystems, such as species loss and extinction, are projected to be lower. Sea level rise will also occur at a slower rate, allowing small islands, low-lying coastal areas and deltas more opportunity to adapt. Increases in ocean temperature, with related increases in ocean acidity and decreases in ocean oxygen levels, are projected to be less severe, somewhat reducing risks to marine biodiversity, fisheries and ecosystems. "Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C." But, even to limit warming to 1.5°C, "substantial and sustained reductions in greenhouse gas emissions" must begin immediately.

With its miles of coastline, situated in the mid-latitudes and on the east coast of North America, and as the most densely populated state in the nation, New Jersey is particularly susceptible to climate change risks. Warming temperatures are a risk to New Jerseyans' health. Sea level rise threatens the state's coastline, its coastal habitat, and its rich array of estuarine species. Heavier rainfall events and more powerful storms will flood homes and businesses and knock out infrastructure, as New Jersey experienced in Superstorm Sandy in 2012. Warmer and longer summers will change the composition of New Jersey's forests, affect its agricultural output, and contribute to the northward expansion of agricultural and silvicultural pests.

New Jersey is already experiencing hotter weather and more extreme weather events. Annual temperatures in New Jersey have increased about 3°F since the beginning of the 1900s. Since 1990, the state has experienced nine of the ten hottest calendar years on record, with 2012 being the warmest year on record, at 4.5°F above average.[5] New Jersey has also seen an increase

[3] IPCC Fifth Assessment Report, Climate Change 2014, Synthesis Report Summary for Policymakers, available at http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf (last accessed Oct. 24, 2018).

[4] Available at http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf (last accessed Oct. 24, 2018).

[5] NOAA National Centers for Environmental Information, *State Climate Summaries: New Jersey*, available at https://statesummaries.ncics.org/nj (last accessed Oct. 15, 2018).

in annual precipitation: the state's annual precipitation between 2005 and 2015 was about 8% above average. The number of extreme precipitation events (days with more than 2 inches) during that period also exceeded the average and the State experienced the largest number of extreme precipitation events during 2010-2014 compared to any other 5-year period.[6]

Although precipitation is likely to increase during winter and spring, summer and fall months likely will not see a similar increase. As a result, drought is likely during summer and fall due to rising temperatures which will increase evaporation and dry the soil during these months.[7] Water supplies will become increasingly unpredictable. Rising sea level also causes saltwater intrusion into coastal aquifers, increasing water salinity above acceptable drinking standards. Wastewater infrastructure is also at risk to flooding, further endangering water supply quality. During Superstorm Sandy, the Passaic Valley Sewerage Commission's main treatment facility in Newark was inundated with over 200 million gallons of tidal surge and dumped about 240 million gallons of raw or partially treated sewage a day into Newark Bay and Upper New York Bay.[8]

New Jersey is also already seeing the profound effects of sea level rise on the state's coastline and coastal communities. Nearly 1,800 miles of New Jersey's shoreline are tidally influenced and approximately 2 million people live in coastal counties.[9] The State has 127 miles of Atlantic coastline with almost continuous beach from Sandy Hook to Cape May.[10] The New Jersey coast is particularly vulnerable to inundation because of its sandy beaches, flat coastal plain and gradually sloping shoreline, low-lying barrier islands, and gradual subsidence.[11]

Sea levels in New Jersey are already rising by an average of 1.6 inches per decade, almost double the global rate.[12] EPA has projected that the global warming will cause sea levels to rise an additional 18 inches to 4 feet in New Jersey by 2100.[13] Further sea level rise of even

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[6] *Id.*

[7] EPA, *What Climate Change Means for New Jersey* EPA 430-F-16-032 (August 2016) at 1, available at https://www.epa.gov/sites/production/files/2016-09/documents/climate-change-nj.pdf (last accessed Oct. 17, 2018).

[8] NJ Climate Adaptation Alliance, *A Summary of Climate Change Impacts and Preparedness Opportunities for the Water Resources Sector in New Jersey* (March 2014), at 5, available at https://njadapt.rutgers.edu/docman-lister/resource-pdfs/98-njcaa-water/file (last accessed Oct. 21, 2018).

[9] Stacey Small-Lorenz, Bill Shadel, and Patty Glick, *Building Ecological Solutions to Coastal Community Hazards: A Guide for New Jersey Coastal Communities*, available at https://www.nj.gov/dep/oclup/docs/bescch-final.pdf (last accessed Oct. 17, 2018).

[10] Union of Concerned Scientists, *Confronting Climate Change in the U.S. Northeast* (2007), at p.2, available at https://www.state.nj.us/dep/cleanair/hearings/pdf/09_confronting.pdf (last accessed Oct. 21, 2018).

[11] *Id.* at 4.

[12] NOAA, *State Climate Summaries: New Jersey*, *supra* note 5.

[13] EPA, *What Climate Change Means for New Jersey*, *supra* note 7.

12 inches could cause shorelines to recede by as much as 120 feet.[14] Barrier islands on the state's Atlantic Coast from Bay Head to Cape May could be broken up by new inlets or lost to erosion if sea level rises three feet.[15] And up to 3 percent of New Jersey's land area could be inundated by four-foot sea level rise,[16] which would affect countless homes, businesses, hospitals, schools, and critical infrastructure. New Jersey has been ranked as one of the most threatened states in terms of the value of coastal real estate at risk from sea level rise and chronic flooding in the coming decades.[17]

The state' 239 coastal communities, many of which are in or near low-lying areas, are particularly vulnerable to the effects of sea level rise, storm surges, wind damage, flooding, erosion, polluted runoff, and saltwater intrusion.[18] These effects of sea level rise are magnified during storm events, which increase the severity of coastal flooding and erosion. For example, in 2012, Superstorm Sandy wreaked havoc in the State. Its storm surge, produced by strong winds and an unusual west-northwestward track, reached 9-10 feet above normal in some coastal areas. The extensive damage the State experienced from severe winds and coastal flooding reached an estimated $29.4 billion in repair, response and restoration costs.[19] Sandy cost the state an estimated $11.7 billion in lost gross domestic product, including $950 million in tourism losses.[20]

Tidal marshes are one of the State's defining coastal features and highly valuable as a buffer for back-bay communities against erosion and inundation and as wildlife habitat.[21] With more frequent and intense storms and rising sea levels, tidal flats and marshes could become open water, jeopardizing the survival of many species that depend on tidal flats and marshes to feed and nest.[22] New Jersey's coastal wetlands are an important stopover point for about 1.5 million migratory birds and contain the world's largest population of horseshoe crabs.[23] The

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[14] Small-Lorenz et al., *Building Ecological Solutions*, *supra* note 9, at 16.

[15] EPA, *What Climate Change Means for New Jersey*, *supra* note 7, at 1.

[16] Small-Lorenz et al., *Building Ecological Solutions*, *supra* note 9, at 12.

[17] Union of Concerned Scientists, *Underwater: Rising Seas, Chronic Floods, and the Implications for US Coastal Real Estate* (June 2018), at 5-7, 10-11, available at https://www.ucsusa.org/sites/default/files/attach/2018/06/underwater-analysis-full-report.pdf (last accessed Oct. 23, 2018).

[18] Small-Lorenz et al., *Building Ecological Solutions*, *supra* note 9, at 6.

[19] *Id.*

[20] NJ Climate Adaptation Alliance, *A Summary of Climate Change Impacts and Preparedness Opportunities for the Coastal Communities in New Jersey* (April 2014), at 5, available at https://njadapt.rutgers.edu/docman-lister/working-briefs/108-njcaa-coastal-communities/file (last accessed Oct. 21, 2018).

[21] Small-Lorenz et al., *Building Ecological Solutions*, *supra* note 9, at 62.

[22] EPA, *What Climate Change Means for New Jersey*, *supra* note 7, at 2.

[23] NJ Climate Adaptation Alliance, *A Summary of Climate Change Impacts and Preparedness Opportunities Affecting Natural Resources in New Jersey* (March 2014), at 1, available at

Delaware Bay is a major stopover area for at least six species of migratory shorebirds that feed on its beaches and tidal flats, including most of the Western Hemisphere's red knot population. Diamondback terrapin nest on estuarine beaches at risk of disappearance.[24]

In addition to residential flooding and displacement, climate change impacts extend to critical infrastructure including roads, bridges, power plants, airports, ports, public buildings and military bases. Since 1992, the portion of disturbance events along the electric bulk transmission system caused by weather-related phenomena has more than tripled, from about 20 percent to about 65 percent.[25] Superstorm Sandy knocked out power for 2.8 million customers, representing approximately 71 percent of all electric customers in the State.[26] New Jersey has had to spend billions of dollars to harden electric and gas distribution networks to create a more flood-resistant energy grid.[27]

Regional droughts, excess winter precipitation, and spread of pests and diseases as temperatures continue to rise will also cut into agriculture yields.[28] The state's diverse agricultural sector, including fruits, vegetables, field crops, equine, poultry, eggs, dairy, specialty crops, and fish and seafood, is a billion-dollar industry.[29] Increasing temperatures during the summer are expected to reduce economically important crop yield. Rising winter temperatures threaten crops, such as blueberries and cranberries, which require long periods of winter chill, and also will continue the northward expansion of agricultural pests and weeds. Milk production could decline 5 to 20 percent in certain months, as dairy cows produce less milk when temperatures exceed 75°F.[30] Ocean acidification caused by high carbon dioxide concentrations damages oyster and mussel populations. Ocean acidification also harms the phytoplankton and

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https://njadapt.rutgers.edu/docman-lister/working-briefs/106-njcaa-natural-resources/file (last accessed Oct. 21, 2018).

[24] EPA, *What Climate Change Means for New Jersey*, *supra* note 7, at 1.

[25] NJ Climate Adaptation Alliance, *A Summary of Climate Change Impacts and Preparedness Opportunities for Telecommunications and Energy Utilities in New Jersey* (March 2014), at 3, available at https://njadapt.rutgers.edu/docman-lister/resource-pdfs/97-njcaa-utilities/file (last accessed Oct. 21, 2018).

[26] New Jersey Office of the Governor, *New Jersey Five Years Post-Sandy: Stronger than the Storm* at 154 (2017), available at https://nj.gov/governor/Sandy-Play-Book (last accessed Oct. 29, 2018).

[27] *Id.* at 3.

[28] NJ Climate Adaptation Alliance, *A Summary of Climate Change Impacts and Preparedness Opportunities for the Agricultural Sector in New Jersey* (March 2014), at 5, available at https://njadapt.rutgers.edu/docman-lister/resource-pdfs/96-njcaa-agriculture/file (last accessed Oct. 21, 2018).

[29] *Id.* at 1.

[30] *Id.* at 6.

zooplankton species that constitute the base of marine food webs, which in turn will impact fisheries, including shellfisheries and aquaculture important in the state.[31]

Given these clear climate change impacts, EPA's proposed rule harms states, like New Jersey, that are already feeling the effects of climate change, and that have taken action to protect residents, natural resources and communities. In 2006, New Jersey adopted California's Low Emission Vehicle Program in its entirety, including the Zero Emissions Vehicle (ZEV) sales mandate, to help meet the state's GHG reduction goals, as well as to reduce emissions of ozone precursors, carbon monoxide, air toxics and fine particulate matter.[32] In 2007, the Global Warming Response Act was enacted, which called for a reduction of statewide GHG emissions to 80% below 2006 levels by 2050. N.J. Stat. Ann. § 26:2C-37. From 2011 to 2016, the state achieved a 26% reduction in CO_2 emissions from fossil fuel-fired electricity generation, while decreasing its reliance on coal by almost 70%.[33] New Jersey also has a clean energy program, which offers financial incentives, programs and services for residents, business owners and local governments.[34]

More recently, New Jersey joined the United States Climate Alliance, *see* N.J. Stat. Ann. 26:2C-58, a bipartisan coalition of states committed to uphold the Paris Climate Accord after the federal government's decision to withdraw. New Jersey also committed to re-joining the Regional Greenhouse Gas Initiative, a cooperative effort among Mid-Atlantic and Northeastern states to reduce greenhouse gas emissions from the electricity generating sector by creating a market where power plants can buy and sell allowances to meet established emission limits.[35] In 2017, New Jersey was the fifth largest producer of electricity from solar energy.[36] New Jersey also has an ambitious renewable portfolio standard, which requires electricity suppliers serving customers in the state to procure an ever increasing share of the electricity sold in New Jersey from qualified renewable energy resources. *See* N.J. Admin. Code § 14:8-2.3. On May 23, 2018, New Jersey Governor Philip D. Murphy signed the Clean Energy Act of 2018 to improve upon and expand the state's existing renewable energy portfolio standards. Beginning with energy year 2022, the Clean Energy Act requires 28.6% of electricity sold in the state to be generated from renewable sources, increasing to 53.6% by energy year 2031. The Act also

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[31] *Id.* at 6-7.

[32] Rule Adoption: Low Emission Vehicle Program, 38 N.J. Reg. 497(b) (Jan. 17, 2006), codified at N.J. Admin. Code §§ 7:27-29.1 to -29.13; *see* N.J. Admin. Code § 7:27-29.6 (ZEV sales requirement).

[33] *See* New Jersey Department of Environmental Protection, "NJ's Clean Energy Picture: Electricity Generation in New Jersey," available at https://www.state.nj.us/dep/aqes/opea-clean-energy.html (last accessed Oct. 25, 2018).

[34] *See* New Jersey Board of Public Utilities, "NJ's Clean Energy Program," available at http://www.njcleanenergy.com/ (last accessed Oct. 25, 2018).

[35] *See* Governor Murphy's Executive Order No. 7 (Jan. 29, 2018), available at https://www.state.nj.us/infobank/eo/056murphy/pdf/EO-7.pdf (last accessed Oct. 25, 2018).

[36] *See* U.S. Energy Information Administration, "New Jersey State Profile and Energy Estimates," available at https://www.eia.gov/state/?sid=NJ (last accessed Oct. 29, 2018).

expands New Jersey's existing solar program, adds a new community solar energy program, sets a goal of installing 2,000 megawatts (MW) of energy storage and 3,500 MW of offshore wind generation by 2030, and includes new energy efficiency improvement goals.[37]

New Jersey continues to do its part to reduce its global warming emissions and to protect future generations from the worst effects of climate change. EPA must do its part, starting by scrapping this rulemaking which would *increase* CO_2 emissions, and which was proposed against overwhelming scientific consensus about the need to dramatically cut these emissions.

II. EPA'S PROPOSED CHANGES TO THE NEW SOURCE REVIEW PROGRAM[38]

A. Under the Clean Air Act, the relevant NSR test is whether more pollution is emitted, not whether hourly capacity is increased.

EPA proposes that NSR would only be triggered if undertaking a physical change or change in operation of an existing electric generating unit (EGU) results in "an increase in the hourly emissions rate at the EGU based either on the maximum achieved hourly emissions rate . . . or maximum achievable hourly emissions rate." EPA asserts that "Congress did not specify how to calculate 'increases' in emissions" in the CAA, leaving EPA to "fill that gap." 83 Fed. Reg. at 44780. EPA also cites the long legal history of the *Duke Energy* case,[39] contending that the Supreme Court, there, had no occasion to address whether the Clean Air Act *allows* EPA to define "modification" the same way in both the NSR and New Source Performance Standards (NSPS) programs, and reasoning that the Court only stated the CAA does not *require* NSR to have an hourly emissions test. *Id.* at 44779.

EPA acknowledges that the D.C. Circuit unequivocally held that an emissions increase must be measured in terms of actual emissions, and not in terms of increases in potential or allowable emissions. *Id.* at 44780 (citing *New York v. EPA*, 413 F.3d 3, 40 (D.C. Cir. 2005) (*New York I*)); *see also id.* at 44781.[40] EPA asserts, however, that an applicability test based on maximum achievable hourly emissions is, in fact, a test based on actual emissions. Citing its never-finalized 2007 supplemental notice of proposed rulemaking, EPA contends that, as a practical matter:

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[37] Act of May 23, 2018, ch. 17, available at https://www.njleg.state.nj.us/2018/Bills/PL18/17_.PDF (last accessed Oct. 25, 2018).

[38] New Jersey agrees with New York's comments opposing EPA's proposed weakening of the New Source Review program. *See* Comments of the New York Attorney General, *supra* note 2, at Section VI.

[39] Culminating in *Environmental Defense v. Duke Energy Corp.*, 549 U.S. 561 (2007).

[40] EPA seeks comments on whether it has "more flexibility" to interpret the term "modification" where sources "are compelled" to make changes by an NSPS, in light of *UARG v. EPA*, 134 S. Ct. 2427, 2439-41 (2014). 83 Fed. Reg. at 44782 [Comment C-69.] As explained *infra* at Section II.B, it does not.

> [F]or most, if not all, EGUs, the hourly rate at which the unit is actually able to emit is substantively equivalent to that unit's historical maximum hourly emissions. That is, most, if not all EGUs will operate at their maximum actual physical and operational capacity at some point in a 5-year period. In general, the highest emissions occur during the period of highest utilization. As a result, both the maximum achievable and maximum achieved hourly emissions increase tests allow an EGU to utilize all of its existing capacity, and in this aspect the hourly rate at which the unit is actually able to emit is substantively equivalent under both tests.
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> [83 Fed. Reg. at 44779 (citing 72 Fed. Reg. 26219 (May 8, 2007)).]

EPA's premise is wrong. As succinctly stated by EPA's Air Enforcement Division, "neither the 'achievable' or 'achieved' test can be characterized as an accurate measure of actual emissions as a source would be able to inflate its baseline or change its practices to ensure that NSR was never triggered." *See* Memorandum from Adam Kushner to William Harnett (Aug. 25, 2005), Office of Enforcement and Compliance Assurance ("OECA Memo"), attached hereto as Exhibit 1, at 9 (evaluating the August 24, 2005 draft NSR Clean Air Interstate Rule which proposed the same "achievable" and "achieved" hourly emissions tests).

1. Both EPA's Proposed Maximum Achieved and Maximum Achievable Hourly Emissions Tests Effectively Measure Potential to Emit, Not Actual Emissions.

Under the hourly emissions tests in the ACE proposal, a project would trigger NSR only if it would increase the unit's maximum hourly emission rate (and possibly not even then). Neither test considers hours of operation. The tests thus measure increases in a unit's potential-to-emit, not increases in actual emissions on a tons per year basis.

a. The Proposed Maximum "Achieved" Hourly Emissions Test is Flawed Because It Does Not Measure Actual Emissions Increases

For the proposed maximum *achieved* hourly emissions test, the EGU owner/operator would compare the pre-change maximum "actual" hourly emissions rate to a projection of the post-change maximum actual hourly emissions rate. The pre-change rate would be determined either (1) using the highest emission rate the unit actually achieved for any single hour within the 5-year period preceding the physical change, or (2) by undertaking a statistical analysis of continuous emissions monitoring system (CEMS) or predictive emissions monitoring system (PEMS) data within the 5-year period preceding the physical change, and using the ten percent (10%) of the data set corresponding to the highest heat input rate for the selected period.

This in effect is a maximum capacity test: emissions increases are calculated by comparing the maximum hourly emission rate, generally expressed in pounds per hour (lbs/hr), in the years prior to the change with projected actual emissions after the change. Such a test is meaningless in terms of measuring *actual* emissions increases: as EPA previously acknowledged, "a test that relies on a source's highest short-term actual emissions would be too easy to circumvent. For a short time, sources can run at maximum capacity so that the baseline short-term emissions would likely be nothing less than the source's maximum *potential*

emissions." Proposed Rule: Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR), 61 Fed. Reg. 38250, 38259 (July 23, 1996) (emphasis added). Evaluating a similar rule proposal in 2005, EPA's Air Enforcement Division (AED) analyzed emissions data obtained from EPA's Clean Air Markets Division from units with known capacity increases, and evaluated such data both pre- and post-change. *See* OECA Memo at 2. EPA's AED concluded that "only under the rarest of operational circumstances" would a change causing an emissions increase at an EGU trigger NSR under the "achieved" test. *Id.* at 5. The memo goes on to note that "[u]nless the draft rule incorporates standards regarding representativeness of data and data correction, neither the 'achievable' or 'achieved' test can be characterized as an accurate measure of actual emissions as a source would be able to inflate its baseline or change its practices to ensure that NSR was never triggered." *Id.* at 9.

EPA's proposal does not incorporate any such standards. Under the statistical approach, while EPA allows, as an option, an existing EGU to use the ten percent of the monitoring data set with the highest heat input, the statistical validity of calculating average emissions based on heat input data is not known. The rule does not proscribe that this "top" heat input rate be representative of typical operating conditions. New Jersey has long expressed its concern that the proposed hourly test, after sorting for the top 10% heat input, would not capture many increases in peak actual hourly emissions. This is especially true during hot summer days. In its comments on EPA's 2007 "Proposed Rulemaking for Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Emission Increases for Electric Generating Units," using figures from EPA, the New Jersey Department of Environmental Protection (NJDEP) demonstrated how EPA's statistical approach yielded "calculated" actual emissions that were 12% higher than the permit allowed.[41] Finally, and significantly, an existing EGU is not required to use this statistical approach, but may simply use the highest emission rate the unit actually achieved during any *one* hour in the five-year period preceding the change. Thus, EPA's attempt to incorporate some data validity measure by means of a statistical analysis (which itself is flawed) is meaningless when an EGU can simply pull out a *single* hour at which it operated at (or even above) maximum capacity and use that hourly emission rate as its pre-change baseline.

In practical terms, the maximum achieved hourly emissions test would require an increase in the EGU's hourly emission rate—i.e., an increase in capacity beyond the unit's original design—to ever trigger NSR. Indeed, even that may not be sufficient to trigger NSR under EPA's proposed test since EGUs can, and do, increase peak actual hourly emissions by operating above the unit's maximum rated heat input for short periods (e.g., during high demand periods).[42]

b. The Proposed Maximum "Achievable" Hourly Emissions Test is Flawed Because It Does Not Measure Actual Emissions Increases

[41] August 7, 2007 comments submitted on behalf of NJDEP, Document No. EPA-HQ-OAR-2005-0163-0305, available at https://www.regulations.gov/document?D=EPA-HQ-OAR-2005-0163-0305 (last accessed Oct. 26, 2018).

[42] *See id.*

For the proposed maximum *achievable* hourly emissions test alternative (which mirrors the NSPS modification applicability test), the EGU owner/operator would look at whether the physical change results in any increase above the maximum hourly emissions achievable at that unit during the 5-year period preceding the change. This test clearly is pegged to potential or allowable emissions rather than actual emissions. As EPA's Air Enforcement Division pointed out in 2005, "[t]he achievable test is a measure of the 'potential' emissions of a source (and not an accurate one at that) in the classic and historical use of that term." OECA Memo at 9; EPA in the past has referred to the maximum achievable test as a "potential-to-potential" test. *See, e.g.*, EPA, Draft Rule Preamble, PSD and NSR: Alternative Applicability Test for EGUs Subject to the Clean Air Interstate Rule at 71 (June 15, 2005), Document No. EPA-HQ-OAR-2005-0163-0045,[43] (equating "the potential-to-potential test" to "a maximum hourly emissions test"); *see also* EPA, Final Rule: PSD and NSR Equipment Replacement Provision of the Routine Maintenance, Repair and Replacement Exclusion, 68 Fed. Reg. 61248, 61272 (Oct. 27, 2003) ("The NSPS program requires a change to result in an increase in the hourly *potential to emit* of the facility.") (emphasis added).

Similar to the achieved test, the achievable test would require an increase in capacity beyond the unit's original design to trigger NSR. EPA explicitly acknowledges this: "both the maximum achievable and maximum achieved hourly emissions increase tests allow an EGU to utilize all of its existing capacity." 83 Fed. Reg. at 44779. Likewise, industry throughout the years in various briefs filed in NSR litigation and in comments submitted in NSR rulemaking proceedings has recognized this basic fact. *See, e.g.*, Brief of Industry Petitioners at 6, *New York I*, 413 F.3d 3 (No. 02-1387) 2004 WL 5846387 (an increase in a facility's maximum hourly emissions rate amounts to an increase in its existing capacity to emit); *id.* at 8 (the NSPS modification provision applies to "activities that increase a unit's 'potential' emission rate"); *id.* at 9 (for a project to "create 'new' capacity to emit," it "must first increase an existing facility's maximum achievable emissions rate"); *id.* at 10-11 (equating "potential to emit" with a facility's "existing design capacity"). *See also* Joint Brief of Industry Intervenors at 3, *New York I*, 413 F.3d 3 (No. 02-1387) 2004 WL 5846442 (alleging that "EPA established a regulatory definition of 'modification' [under NSPS], which provided that the determination of whether an emissions increase occurs is made by reviewing whether the maximum emissions after a change would be greater than maximum emissions at full capacity before the change, i.e., a 'potential-to-potential' test") (citations omitted); *id.* at 11 (potential-to-potential test compares "maximum emissions before a change to maximum emission after a change."); *id.* at 12 (linking increases in potential emissions rate to operation at full design capacity); *id.* at 13 (EPA may "base the modification determination on whether there will be an increase in a major source's 'potential' emissions, i.e., in the source's maximum pre-change emissions level").

Moreover, commenting on this same test as proposed in 2005, EPA's Air Enforcement Division pointed out that the achievable test, because it fails to proscribe any standards to ensure that maximum hourly achievable emissions are representative of typical operating conditions and of good air pollution control practices, gives utilities the "opportunity to rely on artificially high, non-representative emissions data." OECA Mem. at 7. Indeed, because a utility would have

[43] Available at https://www.regulations.gov/document?D=EPA-HQ-OAR-2005-0163-0045 (last accessed Oct. 29, 2018).

many ways to show that a particular capacity is or was theoretically "achievable," application of the test would be "largely unenforceable." *Id.* at 2.

c. Response to EPA Comment C-63

EPA seeks comment on its assertion that an hourly achievable test is equivalent to a measure of actual emissions because "for most, if not all EGUs, the hourly rate at which the unit is actually able to emit is substantively equivalent to that unit's historical maximum hourly emissions." 83 Fed. Reg. at 44781 (citing EPA, Supplemental Notice of Proposed Rulemaking: Prevention of Significant Deterioration and Nonattainment New Source Review: Emission Increases for Electric Generating Units, 72 Fed. Reg. 26202, 26219 (May 8, 2007)). In particular, EPA seeks comment on this assertion and whether "recent changes to the energy sector may have rendered it [EPA's assertion] invalid." 83 Fed. Reg. at 44781.

EPA has asked the wrong question: there is little doubt that most, if not all, plants could, for very brief periods, operate at their "historical" maximum hourly emissions rate. *See* 1996 Proposed Rule on PSD and NSR, 61 Fed. Reg. at 38259 ("For a short time, sources can run at maximum capacity so that the baseline short-term emissions would likely be nothing less than the source's maximum *potential* emissions."). The relevant question for NSR purposes is whether EGUs currently can operate at maximum capacity for sustained periods of time without the need to undertake physical changes, including upgrades or overhauls of steam turbines, boiler tube assemblies, and economizers. The answer for EGUs needing to undertake such modifications is "no": steam leakages and blade erosion of steam turbines result in decreased heat-rate efficiency, and economizers—heat exchange devices used to capture waste heat from boiler flue gas, which is then used to heat boiler feedwater—degrade with time and use.[44] Moreover, as EPA recognizes, "it is unlikely that an EGU would increase its efficiency without also increasing its operating and physical capacity," including availability).[45] EPA in its current proposal explains that an "EGU which undergoes the HRI project will typically experience greater unit availability and reliability, all of which contribute to lower operating costs." 83 Fed. Reg. at 44775. Increasing efficiency lowers fuel costs, thereby reducing the unit's marginal cost of generating electricity. EGUs with lower operating costs are generally preferred in the dispatch order by a system operator, and, indeed, EPA's regulatory impact analysis (RIA) shows that "improving an EGU's heat rate will lead to increased generation due to its improved efficiency and relative economics." *Id.*

The relevant point—not captured by EPA's request for comment—is that the unit's annual emissions are likely to increase following a change that increases efficiency, whether or not the unit's "historical" maximum hourly emissions rate equals the hourly rate at which the

[44] *See* Sonal Patel, "What Coal Generators Should Know about the EPA's Proposed ACE Rule," *Power Magazine* (Aug. 21, 2018), available at https://www.powermag.com/what-coal-generators-should-know-about-the-epas-proposed-ace-rule (last accessed Oct. 26, 2018) (describing webinar on how-to-improve steam turbine heat rate and increase output).

[45] EPA, Technical Support Document for PSD and NSR Review: Emissions Increase Test for EGUs, EPA-457/R-07-001 at 5-3 (April 2007), available at https://www.regulations.gov/document?D=EPA-HQ-OAR-2005-0163-0246 (last accessed Oct. 29, 2018).

unit is actually able to emit. This is a straightforward proposition: efficiency improvements may lead to higher annual emissions because the EGU is likely to operate at a higher capacity factor after the modification.

Even considering the question posed, there is no support for EPA's "equal" contention, and EPA does not cite to any analysis of its hourly emission database. EPA does not provide any information about operational parameters and conditions, or whether its assertion pertains to hourly rates that are representative of typical operating conditions and of good air pollution control practices. And while recent changes to the energy sector may impact how much a coal-fired EGU operates on an annual or monthly basis, such changes would not impact the unit's historical maximum hourly emissions rate (which, as noted, could be based upon a single hour under EPA's proposal).

2. Because EPA's Proposed Hourly Emissions Tests in Reality Measure Increases in Potential to Emit, not Actual Emissions, and Consequently Would Result in Significant Increased Actual Emissions, they are Illegal under the Clean Air Act

The Clean Air Act requires EGUs to comply with NSR and install modern pollution controls before making any physical or operational modification that could reasonably be expected to increase *actual* emissions beyond de minimis levels. Section 111(a)(4) of the Act defines "modification" as "any physical change in, or change in the method of operation of, a stationary source *which increases the amount of any air pollutant emitted by such source* or which results in the emissions of any air pollutant not previously emitted." 42 U.S.C.A. § 7411(a)(4) (emphasis added). Notably, Congress used the term "amount" rather than "rate" to describe the emissions increase necessary to trigger NSR requirements.

In line with Congressional expectations, a bevy of cases—including a decision by the Supreme Court—have found that it is *actual* emissions that count for NSR enforcement purposes:

- *Alabama Power v. Costle*, 636 F.2d 323 (D.C. Cir. 1979)—modification provisions of NSR mean that if modified plants increase pollution, those plants must comply with NSR, emphasizing actual impacts on ambient air.
- *Wisconsin Electric Power Co. v. Reilly*, 893 F.2d 901 (7th Cir. 1990) (*WEPCO*)—boiler replacement and upgrade would trigger NSR if emissions would be increased; court noted that Congress designed the NSR program to be "concerned with increases in total annual emissions, to ensure that operators of regulatory sources in relatively unpolluted areas would not allow a decline in air quality to the minimum level permitted by NAAQS." *Id.* at 904.
- *U.S. v. Cinergy Corp.*, 458 F.3d 705 (7th Cir. 2006)—rejecting attempt by EGUs to use an hourly test to avoid NSR, finding it was appropriate for EPA to use the actual annual test, with projected actual emissions measured using projected actual operating hours and projected actual production rates.
- *New York v. EPA*, 413 F.3d 3 (D.C. Cir. 2005) (*New York I*)—rejecting utility industry's "potential-to-potential" NSR emissions test in favor of EPA's actual-to-projected-actual

test for measuring emissions, noting "the CAA unambiguously defines 'increases' [under CAA § 111(a)(4)] in terms of actual emissions." *Id.* at 39. The court also rejected EPA's attempt in its 2002 rule to create a "clean unit exemption" from NSR, "because the plain language of the [Clean Air Act] indicates that Congress intended to apply NSR to changes that increase actual emissions instead of potential or allowable emissions." 413 F.3d at 40.

- *Environmental Defense v. Duke Energy Corp.*, 549 U.S. 561 (2007)—utility's argument for an hourly emissions rate test like that used for NSPS purposes "seems too far a stretch for the language used" to apply that approach to NSR, with court noting that "[t]he NSPS and PSD regulations are complementary and *not* related as set to subset." 549 U.S. at 581 n.8 (emphasis added).

These decisions reflect the purposes of the NSR provisions: to maintain (in the case of PSD) and improve (in the case of non-attainment NSR) air quality in areas where new or modified plants are located. For example, the PSD provisions of the CAA require that the effect of a new or modified source on air quality in the region be analyzed, 42 U.S.C.A. § 7475(a), while the non-attainment NSR provisions of the Act require a source to obtain emissions offsets so that total emissions will be sufficiently less after the source begins operation, 42 U.S.C.A. § 7503(a)(1). By contrast, the NSPS provisions of the CAA are intended to ensure that new and modified sources use emission controls that are at least as effective as the "best system of emissions reductions which . . . have been adequately demonstrated." 42 U.S.C. § 7411(a)(1). This requirement is the same regardless of the quality of air in the area in which the source is located or the number of sources located in the area.

EPA's regulations to date have reflected these differences between the two programs. Because the NSPS program is primarily concerned with the efficacy of emission controls, without regard to the total amount of pollution emitted, the NSPS regulations require an increase in the hourly emission rate as a prerequisite for a major modification. *See* 40 C.F.R. § 60.14(b) (NSPS emissions test based on rate of emissions "expressed as kg/hr"). On the other hand, because NSR is concerned with the total amount of pollution being emitted, a modification that increases total annual emissions triggers NSR requirements regardless of whether the hourly emission rate is increased. *See generally* EPA, Final Rule: Standards of Performance for New Stationary Sources, 57 Fed. Reg. 32314, 32316 (July 21, 1992) (different emission increase tests reflect "the fundamental distinctions between the technology-based provisions of NSPS and the air quality-based provisions of NSR"). The NSR program is a whole-source or site-oriented program for which an annual test is appropriate, whereas the NSPS program is generally an equipment-oriented rule focusing on the affected facility for which an hourly based emissions test is appropriate.

As explained above, EPA's proposed hourly tests would trigger NSR requirements only if an EGU increases its maximum hourly emissions *rate*, and an increase in an EGU's maximum hourly emissions rate generally occurs only when there is an increase in an EGU's existing

capacity, i.e., its design capacity.[46] Both tests consequently exclude from the emissions inquiry one of the basic factors—hours of operation—that determines how much of a pollutant a plant actually emits into the air. "More hours of operation results in increased emissions" even when the hourly emission rate remains constant. *United States v. Ohio Edison Co.*, 276 F. Supp. 2d 829, 869 (S.D. Ohio 2003); *see also United States v. Ameren Missouri*, 229 F. Supp. 3d 906, 915 (E.D. Mo. 2017) (observing that courts in PSD enforcement actions have long recognized that, "'[i]f the repair or replacement of a problematic component renders a plant more reliable and less susceptible to future shut-downs, the plant will be able to run consistently for a longer period of time,' burning more coal and emitting more pollution") (quoting *United States v. Ala. Power Co.*, 730 F.3d 1278, 1281 (11th Cir. 2013)); *Puerto Rican Cement Co., Inc. v. EPA*, 889 F.2d 292, 298 (1st Cir. 1989) (noting the defendant's "new, more efficient kiln might give it the economic ability to increase production; consequently, EPA could plausibly fear an increase in actual emissions"). EPA concedes as much: "As the EGU increases its generation, to the extent the EGU operates beyond its historical levels by a meaningful amount, it could result in an increase in emissions on an annual basis . . . ." 83 Fed. Reg. at 44775. *See also* OECA Mem. at 6 ("[T]he question remains how either test [achievable or achieved] measures actual emissions when neither considers hours of operation.").

Moreover, not only could annual emissions from a plant increase substantially under EPA's proposal because the plant can now operate with lower marginal costs and for more hours between maintenance outages or outright breakdowns (forced outages), but the refurbished/rebuilt plant would have an extended life. Indeed, the refurbished plant could operate indefinitely: a plant could undertake repeated "efficiency improvements" or other modifications to keep it running for years into the future. So long as the EGU does not increase its historical maximum hourly emission rate, it would never have to install modern state-of-the-art pollution controls.

In its 2005 memo, EPA's Air Enforcement Division noted that the emissions impact from recapturing lost utilization or through life extension projects "are equal to (and in many instances) greater than emissions increases that may result from capacity and expansion projects." OECA Mem. at 7. According to EPA then, "there is no rational basis for establishing a test that excludes emissions increases associated with boiler changes that are intended to recapture lost utilization or extend the life of a unit." *Id.*

Indefinitely prolonging the life of outdated, high-emitting coal-fired power plants is surely not what Congress intended in enacting the NSR program in 1977. Congress intended that older, higher-emitting sources would gradually be upgraded or phased out.[47] Under the law, the exemption for these "grandfathered" plants built before August 1977 ends when a facility is physically modified in a way that increases its emissions by a significant amount. At that point,

[46] There are occasions (for short periods-of-time during peak demand days) when an EGU will operate above its maximum capacity, i.e., its rated heat input. *See* NJDEP 2007 Comment Letter, *supra* note 41.

[47] *See* H.R. Rep. No. 95-294, at 211 (1977), reprinted in 1977 U.S.C.C.A.N. 1077, 1290; S. Rep. No. 127, at 128 ("approximately 200 coal-fired plants [are] over 20 years of age and most 'will be retired in the next 5 to 20 years'").

NSR is triggered and the facility is required to install modern pollution controls. In addition, the plant must analyze the impacts of its increased emissions on existing air quality increments in attainment areas or offset its emissions in nonattainment areas. The proposed hourly emissions tests thus conflicts with Congress' intent that "modifications" be subject to NSR review, and disregards actual increases in emissions on the order of thousands of tons per year. The tests accordingly are illegal under the Clean Air Act.

B. UARG v. EPA does not give EPA latitude to re-interpret the term "modification," even if sources "are compelled" to make changes by an NSPS (response to Comment C-69).

EPA seeks comment on whether it can apply the reasoning of *UARG v. EPA*, 134 S. Ct. 2427 (2014), to read the definition of "modification" under the PSD provisions of the Act (Section 165), to afford "more flexibility" in order to exempt sources from NSR requirements when they "are compelled" to make changes by a NSPS (Section 111). [Comment C-69]; *see* 83 Fed. Reg. at 44782. EPA notes that NSPS-based changes (HRIs) under Section 111(d) could result in a source triggering NSR (Section 165) and increasing costs to the point that undertaking HRIs are "less financially feasible" for some sources. *Id.*

UARG does not support EPA's attempt to define modification in a way that does not take into account increases in *actual* emissions, even if the modification is "compelled." Indeed, *UARG* prohibits what EPA attempts here: "An agency has no power to 'tailor' legislation to bureaucratic policy goals by rewriting unambiguous statutory terms." 134 S. Ct. at 2445.

In *UARG*, the Court found the following:

- The Clean Air Act neither compels nor permits EPA to adopt an interpretation of the Act requiring a stationary source of pollution to obtain a PSD or Title V permit on the sole basis of its potential greenhouse gas emissions.
- Thus, EPA need not "tailor" (amend) the Act's major-source thresholds to avoid an administrative debacle that would result from requiring permits for the millions of small, non-industrial facilities that emit enough CO_2 to quality as "major" sources.
- EPA's "tailoring rule," which rewrote the "major" source applicability thresholds from 250/100 tons per year, as specified in the statute, to 100,000 tons per year, was impermissible, and an exercise of power "beyond the bounds" of the agency's statutory authority. *Id.* at 2445.
- However, EPA reasonably interpreted the Act to require sources that would need permits based on their emissions of conventional pollutants (such as sulfur dioxide (SO_2) and nitrogen oxides (NO_X)) to comply with "best available control technology" (BACT) for greenhouse gases.
- Overall conclusion: "EPA's decision to require BACT for greenhouse gases emitted by sources otherwise subject to PSD review is, as a general matter, a permissible interpretation of the statute under *Chevron*." *Id.*

The Court faulted EPA's tailoring rule and its precedent determination that the Act's reference to "air pollutants" in its permit-requiring provisions includes greenhouse gases

encompassed by the Act-wide definition of "air pollutants." In finding that the Act did not *compel* an interpretation of the PSD and Title V triggers (major emitters of "any air pollutant") that included greenhouse gases, the Court referenced its earlier decision in *Environmental Defense v. Duke Energy Corp.* In that case, the Court found that the presumption of consistent usage "readily yields" to context, and a statutory term—even one defined in the statute—"may take on distinct characters from association with distinct statutory objects calling for different implementation strategies." *Id.* at 2441, (quoting *Duke Energy*, 549 U.S. at 574).

Similarly, in concluding that EPA's interpretation was not *permissible*, the Court found that "a reasonable statutory interpretation must account for both the specific context in which . . . language is used' and 'the broader context of the statute as a whole." *UARG*, 134 S. Ct. at 2442 (quotation omitted). "An agency interpretation that is inconsisten[t] with the design and structure of the statute as a whole does not merit deference." *Id.* (quotation omitted).

Finally, in rejecting EPA's tailoring rule, the Court noted that agencies cannot "'tailor' legislation to bureaucratic policy goals by rewriting unambiguous statutory terms." *Id.* at 2445. And, later: "We reaffirm the core administrative law principle that an agency may not rewrite clear statutory terms to suit its own sense of how the statute should operate." *Id.* at 2446.

Here, EPA lacks authority to redefine "modification" for NSR purposes to mirror the definition of "modification" for NSPS purposes because measuring potential emissions is not a lawful metric for measuring *actual* emissions increases under NSR. The D.C. Circuit set forth the rationale for this prohibition at length in *New York I*. EPA's lack of authority to redefine "modification" is not altered by the fact that physical changes may now be required ("compelled") under EPA's proposed ACE rule: *UARG* prohibits EPA from "tailoring" its interpretation to promote bureaucratic policy goals—namely, the Administration's policy of seeking to increase the use of coal-fired power plants by enabling them to undertake HRIs and other physical changes without incurring the "extra time and cost" associated with NSR compliance. *See* 83 Fed. Reg. at 44775. Moreover, EPA's proposed NSR revisions would apply to all EGUs undertaking physical changes, not just those that make HRIs to comply with the ACE rule.[48] There is no indication in the Clean Air Act—and EPA cites none—that EPA can fundamentally alter a predicate for triggering NSR requirements under Section 165 with respect to criteria pollutants in favor of imposing obligations on sources under Section 111(d) to undertake HRIs that purportedly will reduce another pollutant, i.e., carbon dioxide. *See also Alabama Power*, 636 F.2d at 400 (exemptions to the term modification should be narrowly construed and holding there was no reasonable basis in the statute to limit "modification" to physical changes exceeding a certain magnitude).

EPA's ACE proposal thus is very different from the EPA action that the Court did approve in *UARG*, namely, EPA's decision to require BACT for greenhouse gases emitted by sources otherwise subject to PSD review. The Court found this was "as a general matter, a permissible interpretation of the statute under *Chevron*." 134 S. Ct. at 2448. The Court reasoned

[48] EPA seeks comment on whether the proposed hourly tests should apply only to EGUs that are making modifications to comply with their state's standards of performance. Comment C-62. *See* 83 Fed. Reg. at 44781/2. For all of the reasons set forth herein, the proposed hourly tests should not apply to *any* modifications undertaken by EGUs.

that: "Whereas the dubious breadth of 'any air pollutant' in the permitting [PSD and Title V] triggers suggests a role for agency judgment in identifying the subset of pollutants covered by the particular regulatory program at issue, the more specific phrasing of the BACT provision suggests that the necessary judgment has already been made by Congress." *Id.*

Here too, Congress has defined modification specifically as "any physical change . . . which increases the amount of any air pollutant emitted by such source . . . ." 42 U.S.C.A. § 7411(a)(4). The plain meaning of the term "emitted" in Section 111(a)(4) refers to pollution that a source has *actually* generated. *New York I*, 413 F.3d at 39-40. Further, the word "amount" as used in the phrase "the amount of any air pollutant emitted by [the] source" demonstrates that Congress intended the emissions test to focus on whether actual emissions increased. *Id.* There is no room for EPA to reinterpret this provision in a way that would enable increases in actual emissions (beyond *de minimis* levels) for one set of pollutants in order to purportedly reduce emissions of another set of pollutants regulated under another section of the Act, i.e., greenhouse gases. The definition of "modification" is not analogous to the all-encompassing definition of "air pollutant," which is used in parts of the CAA "where what is meant is obviously narrower" than the Act-wide definition. *UARG*, 134 S. Ct. at 2441. Reading the words of the definition of modification "in their context and with a view to their place in the overall statutory scheme," *id.*, EPA's limiting construction of the term "modification" to encompass only increases in potential emissions is not a permissible interpretation.

In sum, as the D.C. Circuit put the point:

> Implementation of the statute's definition of "modification" will undoubtedly prove inconvenient and costly to affected industries; but the clear language of the statute unavoidably imposes these costs except for de minimis increases. The statutory scheme intends to "grandfather" existing industries; but the provisions concerning modifications indicate that this is not to constitute a perpetual immunity from all standards under the PSD program. If these plants increase pollution, they will generally need a permit. Exceptions to this rule will occur when the increases are de minimis, and when the increases are offset by contemporaneous decreases of pollutants, as we discuss below. These two exceptions, we believe, will allow for improvement of plants, technological changes, and replacement of depreciated capital stock, without imposing a completely disabling administrative and regulatory burden.
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> [636 F.2d at 400.]

C. EPA lacks authority to adopt the EGU hourly tests as these tests effectively create an exemption from NSR by administrative rule.

EPA's proposal to use an hourly test for NSR would effectively exempt EGUs—the nation's largest emitting sector—from NSR requirements. Actual emissions increases will now occur without review, without installation of state-of-the-art air pollution controls, and without modeling of impacts on ambient air. Indeed, EPA recognized this fact in the *Duke Energy* case, where it argued (correctly) that the maximum hourly rate test would eviscerate the effectiveness of the NSR program by excluding projects that increase pollutants by hundreds of tons per year.

See EPA Opening Brief at 45, *United States v. Duke Energy Corp.*, 411 F.3d 539 (4th Cir. 2005) (No. 04-1763), 2004 WL 5551895; EPA Brief in Support of Petition for Panel Rehearing and Rehearing En Banc at 14, *Duke Energy* (No. 04-1763), 2005 WL 1978694.

EPA's proposal thus is analogous to its proposed pollution control project (PCP) exclusion vacated in *New York I*. EPA's 2002 rule exempted PCPs from NSR by excluding them from the definition of "modification." EPA argued that PCPs should not trigger NSR, despite being "physical changes" and despite resultant actual annual emissions increases, because such projects were "environmentally beneficial." The D.C. Circuit struck down the PCP exclusion because it unlawfully exempted physical changes that increased emissions of a regulated air pollutant. The court rejected EPA's contention that Congress did not intend that PCPs be considered the type of activity that should trigger NSR, finding that "[b]ecause EPA fails to present evidence of such congressional intent, the plain meaning of the statute is conclusive. *New York I*, 413 F.3d at 40. Significantly, the court noted that:

> Absent clear congressional delegation . . . EPA lacks authority to create an exemption from NSR by administrative rule. *See Sierra Club v. EPA*, 129 F.3d 137, 140 (D.C. Cir. 1997). Indeed, "this court has consistently struck down administrative narrowing of clear statutory mandates." *Id.*
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> [413 F.3d at 41.]

The proposed ACE rule—whether it applies to all EGU modifications or is limited to those undertaken to comply with the ACE rule—creates an exemption from NSR by not requiring sources that increase actual emissions to comply with NSR requirements. Congress did not authorize EPA authority to create such an exemption, and the proposed hourly tests accordingly violate the language of the Clean Air Act.

D. EPA's own enforcement division, case studies, and NSR enforcement case data show that an hourly test would render NSR meaningless.

EGUs rarely, if ever, increase their maximum hourly emissions rate following a HRI. They do, however, generally increase their overall actual emissions. EPA's own case studies as well as other NSR enforcement case data confirm this.

1. EPA case studies show the proposed hourly tests will result in increased actual emissions.

In evaluating the 2005 rule upon which EPA's current proposal is based, EPA's Air Enforcement Division expressed "significant concerns about the [hourly] test proposed," which AED's then-director warned "will adversely impact our enforcement cases and is largely unenforceable." *See* OECA Mem. at 1. This analysis also demonstrates that it would be extremely rare that either the proposed "achievable" or "achieved" maximum hourly emissions test would ever trigger NSR. In its ACE proposal, EPA states that "fewer sources will trigger major NSR under an hourly emissions increase. . . ." 83 Fed. Reg. at 44782.

The case studies accompanying the OECA memo confirm that the proposed hourly tests will result in actual emissions increases far above *de minimis* thresholds. Examining actual emissions data from EGUs, the Air Enforcement Division concluded that the proposed maximum hourly achievable emissions rate test would lead to the following increases:

- Case study #1: one power plant subject to an NSR enforcement action had increased its SO_2 emissions by 13,096 tons per year without increasing its hourly emissions rate. Changes consisted of replacement of economizer, horizontal reheater, and steam path. AED noted that any increase in capacity or emissions caused by the change would not register because the "achievable" hourly emission rate (baseline) was calculated to be more than ten times higher than the average hourly emission rate in the five-year period preceding the change.
- Case Study # 2 increases of 50 tons per year (tpy) of SO_2 and 978 tpy of NO_X. Change consisted of replacement of reheater, resulting in 10% increase in capacity of unit.
- Case Study # 3 increases of 939 tpy of SO_2 and 1,405 tpy of NO_X. Changes consisted of installing new, higher capacity turbines; new design of reheater with 8% greater surface area, rear arch waterwall replacement, and pulverizer upgrades. Capacity increase of 46 MW.
- Case Study #4 increases of 1,700 tpy of SO_2 and 507 tpy of NO_X. Change consisted of installing newly designed turbine. Increase in capacity of 77 MW.

AED likewise found that these changes would have resulted in annual emissions increases well above *de minimis* levels under a maximum hourly *achieved* emissions rate test. *See* OECA Mem. at 5, 8, 18, 22, 25, 29 & 32.

2. The facts underlying *Duke Energy* show the proposed hourly tests will result in increased actual emissions.

Another example of increased actual emissions following a physical change was the basis of the *Duke Energy* case, cited by EPA in its proposal:

> A pre-1972 coal-fired 750 MW unit is using 0.5% low-sulfur coal (mixing western and eastern coal) and currently operates at 60% capacity with an efficiency (the rate at which it converts coal to electric power) of 31%. While many newer units have capacities near 80%, this unit's capacity is much lower because it is old and requires more shutdown maintenance. The owner of the unit decides to replace and/or redesign the boiler tube assemblies (an expensive and major project) thereby increasing the efficiency and reliability of the unit. In so doing, the boiler requires much less maintenance and does not need to be shut down as often. Therefore, although the unit's efficiency increases to 33%, its capacity factor also increases to 75% because it can be operated over longer times without maintenance. Using the hourly emissions test, the unit's emissions would not increase because the plant's efficiency increased. Specifically, the hourly SO_2 emissions rate would decrease from about 3120 kg/hr before the modification to

> 2932 kg/hr after the modification, assuming the plant does not have a scrubber. Yet, because the unit can now be operated at 75% capacity instead of 60% it would emit about 20,000 tons per year (tpy) of SO_2 post modification compared to about 16,500 tpy pre-modification. This amounts to an approximate 20% increase in yearly SO_2 emissions.
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> [Brian H. Potts, "The U.S. Supreme Court's New Dukedom—The Hour and Year, or a Proposal Quite Near," 33 *Ecology L. Q.* 517 (2006), at 535-36.]

As the AED case studies and the *Duke Energy* facts show, adopting an hourly test for NSR compliance will allow EGUs to perennially evade NSR. It is a free pass to utilities to ramp up use of high-polluting plants with antiquated pollution controls (or none at all for some pollutants), at huge costs to public health and air quality. EPA's proposal effectively "interprets" NSR right out of the Clean Air Act.

E. EPA's attempts to justify its proposal are flawed.

EPA's attempt to justify its proposal from an environmental standpoint has several flaws. These include: 1) EPA concedes that units with HRIs can and likely will operate more hours, and hence emit more pollutants on an annual basis; 2) EPA applies a HRI of 2% and 4.5% across the aboard, with no attempt to carve out units that have already done HRIs and units that would not do HRIs based on cost. EPA thus double-counts already achieved reductions and counts reductions that will never happen; and 3) EPA's assertions about dispatch order and "system-wide" improvements cannot be verified because EPA did not provide a unit-by-unit analysis. *See* 83 Fed. Reg. at 44781. Moreover, they are irrelevant for NSR purposes.

EPA contends that heat rate improvements designed to lower the heat rate of the EGU correlate to the unit consuming less fuel per kWh and thus emitting lower amounts of CO_2 and other air pollutants per kWh generated. 83 Fed. Reg. at 44775. This improvement in efficiency, and corresponding lower operating costs, could also affect the unit's place in the dispatch order, yielding an emission reduction from a system-wide standpoint. *Id.* With regard to this last point, EPA seems to be saying that although the unit may operate more hours as it moves higher in the dispatch order, the unit will displace emissions from units that have not undergone a HRI, resulting in improved "outcomes" from a system-wide standpoint. *See id.* EPA offers no unit-by-unit analysis to back-up these assertions, nor does EPA address the fact that the contemplated HRI projects could extend *by many years* the operating life of the unit. In addition, because the proposal allows individual states to determine which technologies from EPA's HRI list would apply to particular EGUs, there is no assurance that an EGU that has undergone a HRI will displace one that has not.

Further, EPA's reasoning overlooks plant-specific considerations of local air quality—the focus of Title I's NSR requirements. CAA § 111(a)(4) (defining "modification") bases NSR applicability on emission increases at individual sources, not "system-wide" emission increases. Title I statutory requirements are aimed at achieving and maintaining compliance with NAAQS set by EPA at levels adequate to protect public health and welfare. EPA has established NAAQS and determined what regions of the country (on area-wide bases) are meeting or not meeting the standards, with each area designated separately for each NAAQS pollutant. These areas are not

tied to utility system-areas or areas in which the movement of electricity from sources is coordinated by a regional transmission organization. Second, the first enumerated purpose of the PSD program is to protect public health and welfare from any actual or potential adverse effects from air pollution, "notwithstanding attainment and maintenance of all national ambient air quality standards." Section 160(1), 42 U.S.C.A. § 7470(1). Localized emissions increases would pose such adverse impacts.

F. EPA's Regulatory Impact Analysis does not quantify the impacts of the proposed NSR revisions, much less justify this significant regulatory action.

New Jersey agrees with New York's assessment of the serious adverse pollution impacts of the proposed rule. As shown in the New York Attorney General's comments, air pollution under the proposed rule would be substantially higher than under EPA's existing BSER rule, and could even increase emissions in some states compared to EPA's No CPP alternative.[49] This increased air pollution poses a grave threat to public health and welfare across the country and senselessly undermines urgent national and international efforts to curb GHG emissions.[50]

To comply with Executive Order 12866, EPA is required to comprehensively assess the impacts of this proposed rule as a "significant regulatory action." Yet, EPA has provided no quantitative evidence that NSR revisions are needed to achieve the heat rate improvements that EPA proposes to adopt as BSER. And, as noted in the ACE Rule's RIA, the real impact of the NSR revisions cannot be determined from the IPM modeling in support of EPA's BSER proposal. RIA at 1-18 ("The analytical basis supporting the performance and cost of HRI differs across the scenarios for reasons other than the whether there are or are not revisions to NSR are represented, and therefore the incremental differences between the illustrative scenarios cannot be fully attributed to differences in NSR."). Given the scope of the NSR revisions and their potential effect on emissions from a wide range of sources—EPA's proposed NSR hourly test would apply to any boiler or combustion turbine producing more than 25 megawatts as defined in 40 C.F.R. § 51.124(q), not just coal fired boilers—E.O. 12866 mandates that EPA comprehensively assess the impacts of all such boiler and turbines for the power sector on a unit-by-unit basis. The RIA does not even attempt to do this. *See* RIA at 1-17 ("EPA does not have sufficient information to assess HRI potential on a unit-by-unit basis.").

EPA stated that it was necessary to include NSR reform in the proposed rule because NSR requirements could be triggered when implementing HRIs. Tables 3-13, 3-14, and 3-15 in the RIA list the projected nationwide EGU CO_2, SO_2, and NO_X emissions, respectively, and, according to EPA's analysis, in all but one case the total emissions for the three policy cases is less than the No CPP alternative baseline scenario. However, even though EPA acknowledges in a footnote on RIA page 3-19 that "emissions might increase at some generators," EPA did not undertake a unit-by-unit analysis. Without a more detailed unit level analysis, the avoidance by all coal EGUs of an annual emissions increase is not very different than the economic optimized cost minimization solution. In other words, had EPA rerun the policy cases with a constraint that limited each affected coal EGU to no annual emissions increases relative to the corresponding

[49] Comments of the New York Attorney General, *supra* note 2, at Section V.

[50] *See id.* at Section V.C.

No CPP alternative baseline cases, the overall scenario net costs predicted by the model would likely be virtually the same as the corresponding cases EPA ran without this constraint.

G. There are sufficient flexibility measures available in existing federal regulations that allow EGUs to perform heat rate improvements without triggering NSR.

Even if EPA was authorized to revise NSR as proposed, which it is not, the NSR revisions are also not needed here because EGUs undertaking efficiency improvement projects have options to use existing flexible permitting tools without triggering NSR. EGUs can accept an enforceable limit on annual emissions or annual hours of operation, *see* 40 C.F.R. § 52.21(r)(4), or a source-wide emissions cap using Actual Plant-wide Applicability Limit provision, *see* 40 C.F.R. § 52.21(aa), to maintain emissions below NSR applicability thresholds. NSR is currently not a barrier to efficiency improvement projects and power generating facilities have implemented efficiency improvement projects within the NSR applicability guidelines.

H. The NSR revisions cannot be implemented unless States and EPA comply with anti-backsliding provisions in the CAA.

EPA's proposed NSR revisions would exempt power plants from NSR requirements for modifications that, under EPA's existing NSR test, would trigger review and require installation of modern pollution controls. Air pollution will increase significantly as a consequence of the higher capacity and the longer lifetimes of overhauled coal EGUs running without modern pollution controls, as illustrated by the examples given in Section II.D above. If implemented, these NSR revisions are likely to cause states to violate the anti-backsliding requirements of Sections 110(*l*) and 193. Section 193 is a general savings clause that prohibits EPA from adopting control measures weaker than those in place as of 1990 to prevent backsliding on incremental improvements of air quality made over time. 42 U.S.C.A. § 7515. Section 110(*l*) forbids changes to State Implementation Plans that weaken existing controls that states are relying on to attain the NAAQS. 42 U.S.C.A. § 7410(l); *see South Coast Air Quality Mgmt. Dist. v. EPA*, 472 F.3d 882 (2006), decision clarified on denial of reh'g, 489 F.3d 1245 (D.C. Cir. 2007) (holding that NSR is a "control" for purposes of Section 110(*l*)'s backsliding analysis). Before any state could rely on a weakened NSR rule, it would have to identify "equivalent or greater emissions reductions" through a SIP revision, 42 U.S.C.A. § 7515, and EPA would have to determine, for each SIP, that implementing the revised NSR test will not interfere with attainment of the NAAQS or progress toward attainment. 42 U.S.C.A. § 7410(*l*).

III. EPA'S PROPOSED DETERMINATION OF THE BEST SYSTEM OF EMISSION REDUCTION FOR EXISTING FOSSIL-FUELD POWER PLANTS.

New Jersey agrees with the comments submitted by the New York Attorney General opposing EPA's proposed rule that heat rate improvements constitute a Best System of Emissions Reduction under CAA § 111(d). For the reasons stated in New York's letter, EPA's revised BSER determination is arbitrary and capricious because EPA failed to consider evidence in the record of additional proven systems of emission reduction, and because the agency erred in

its analysis of what heat rate improvements are feasible and cost-effective.[51] EPA's proposal to stop regulating gas plants and integrated gasification combined cycle units as "affected units" is contrary to Section 111 and is arbitrary and capricious.[52] The Agency's Regulatory Impact Analysis underestimates the foregone benefits of reducing CO_2 emissions and the lost benefits of EPA's existing BSER rule.[53] For the following additional reasons, EPA's BSER proposal is too flawed to adopt and should be abandoned.

A. EPA's proposal is invalid as a best system of emissions reduction under Section 111(d) because it will lead to increased emissions of CO_2 and criteria pollutants.

In the Clean Power Plan, EPA established section 111(d) emission guidelines for states to follow in developing state plans limiting CO_2 emissions from existing coal-fired power plants as well as gas-fired power plants. 40 C.F.R. § 60.5845. EPA quantified ultimate emission performance rates based on its determination that the best system of emission reduction adequately demonstrated for existing power plans is a combination of three types of pollution control measures: making heat rate efficiency improvements at coal-fired steam generating units; substituting electricity generation from gas plants for generation from coal plants; and substituting electricity generation from zero-emitting renewable energy sources for generation from coal and gas plants.

Through its proposed replacement rule, EPA seeks to reverse its existing best system determination by proposing to exempt all existing gas plants and IGCC coal plants from the current CO_2 emission control. For steam generating coal units, the only power plants that would remain subject to controls, EPA proposes to find that the best system of emission reduction is only heat rate efficiency improvements. In doing so, EPA illegally fails to regulate sources in the category already subject to control under section 111(b), in contravention of the Clean Air Act.[54]

EPA concedes that, as EGU generation increases, "to the extent the EGU operates beyond its historical levels by a meaningful amount, it could result in an increase in emissions on an annual basis . . . ." 83 Fed. Reg. 44775. In other words, an existing EGU that undergoes heat rate improvements could emit more CO_2, sulfur dioxide, nitrogen oxides, mercury, and other air toxics as a consequence of capacity expansion, increased availability, and life extension linked to improved efficiency, new components, and better operating reliability. EPA's claim that these emission increases may be offset when these "more efficient" units displace less efficient units

[51] Comments of the New York Attorney General, *supra* note 2, at Section III.C.

[52] *Id.* at Section III.D.

[53] *Id.* at Section VII.

[54] Although New Jersey joined a petition for review to challenge the legal basis of the CPP, it withdrew from the litigation as of March 1, 2018. *West Virginia v. EPA*, No. 15-1363 (D.C. Cir. filed Oct. 23, 2015). New Jersey acknowledges that the finalized CPP, in stark contrast to the proposed replacement rule, will achieve actual emission reductions as required by Section 111(d).

resulting in lower system wide emissions is not reasonable because the proposed rule does not provide any mechanism to require less efficient units to operate less or shut down.

This likely increase in emissions are likely to have attainment consequences that EPA has not considered in the ACE rule proposal. For example, EPA's modeling suggests that an increase in criteria pollutant emissions if the BSER proposal is finalized would undermine EPA's recent proposed findings that upwind states do not need to implement additional controls to satisfy their good neighbor requirements under the 2008 ozone NAAQS. EPA's Integrated Planning Model predicts increased 2023 ozone season NO_X emissions for the three states in the New York-New Jersey-Connecticut nonattainment region compared to the No CPP alternative. In EPA's recent 2008 Ozone NAAQS Good Neighbor rule proposal,[55] EPA concluded that the Cross State Air Pollution Rule (CSAPR) Update would ensure sufficient upwind reductions to allow downwind nonattainment areas, including the NY-NNJ-CT area, to attain the 2008 NAAQS by 2023 without requiring additional control measures by upwind states. *See* 83 Fed. Reg. at 31936. EPA's good neighbor rule proposal modeling is equivalent to the No CPP alternative in the RIA for the ACE rule because it, too, did not include CPP emissions reductions. EPA's Good Neighbor Rule modeling shows Connecticut air monitors barely achieving the 2008 ozone NAAQS by 2023, and even a slight increase in upwind emissions could tip those air monitors over the threshold.

B. EPA's Regulatory Impact Analysis does not account for key factors necessary to reasonably model emissions from the BSER proposal.

EPA failed to perform a unit-by-unit analysis to determine if heat rate improvements are technically feasible, economically feasible, or if relevant improvement have already been implemented at existing sources. In its Integrated Planning Model runs, EPA evaluated three HRI levels and costs (2% at $50, 4.5% at $50, and 4.5% at $100) nationwide without considering if HRI were already implemented. The technical and economic feasibility of HRIs were not evaluated on an individual unit-by-unit basis. Failing to analyze individual units in the policy cases, and instead generalizing feasibility to all units, results in an over-estimation of emission reductions relative to EPA's No CPP alternative because units that have already implemented HRI, or that cannot implement HRI for technical or cost reasons, will not achieve predicted emission reductions.

EPA also failed to account for life extension of the units that implement HRIs. In many cases, heat rate improvements increase the remaining useful life of the unit by replacing components whose failure prevent an EGU from operating such as economizers and burners. Replacing old components with new allows EGUs to keep running for more hours per year, and for years beyond their design life. Owners and operators will attempt to maximize the return on investments in heat rate improvements by extending the lifetime of the unit. For example, if the remaining useful life of a unit is 5 years, then the HRI could extend the life of the unit by another 10 to 15 years. This means this unit will increase its life-time emissions of all regulated NSR pollutants and air toxics by 10 to 15 years.

[55] EPA, Proposed Rule: Determination Regarding Good Neighbor Obligations for the 2008 Ozone National Ambient Air Quality Standard, 83 Fed. Reg. 31915 (July 10, 2018).

C. EPA's Regulatory Impact Analysis severely underestimates the benefits of GHG reductions.

The RIA's valuation of the benefits of CO_2 emissions reductions at $10 to $12 per ton grossly understates the social cost of carbon. For the reasons described in the Comments of the New York Attorney General at Section VII.A.1, EPA's decision to limit consideration of CO_2 reduction benefits to the U.S. is wholly arbitrary given the global impacts and costs of U.S. GHG emissions. EPA should evaluate its ACE Rule proposal using realistic, widely-accepted estimates of the social cost of carbon, such as the latest Inter-Agency Working Group on Social Cost of Carbon estimate of $42 per metric ton of CO_2 emissions in 2020 using a 3% discount rate.[56] A more recent study indicates the social cost of carbon could be significantly higher.[57]

Furthermore, EPA's decision to limit its analysis of social cost of carbon impacts to 2025, 2030, and 2035 is arbitrary because these limits provide too short a timeframe to be representative of the true impact of CO_2 emissions. Any analysis constrained to these years ignores the indisputable fact that CO_2 emissions continue to affect climate change for at least 100 years after release. By comparison, the Intergovernmental Panel on Climate Change has given time horizons of 25, 100, and 500 years global warming potential for CO_2, and a 100-year horizon is the most frequently cited timeframe for meaningful analysis,[58] as EPA itself has recognized.[59] EPA must reevaluate the costs and benefits of the ACE proposal based on a minimum 100-year time horizon.

Lastly, EPA's reliance on 3% and 7% discount rates is arbitrary because the environmental impacts of CO_2-equivalent emissions span a much longer time horizon. The RIA presented an alternative of using a 2.5% discount rate, but even that is too high a discount rate when considering the lifetime global warming potential of CO_2 emissions. A lower discount rate accounts for uncertainties over a longer time horizon. Although the Office of Management and Budget's Circular A-4 advocates the use of a 3% discount rate, OMB's guidance is based on outdated metrics. For example, OMB explains that "the yield on 10-year Treasury notes has averaged 8.1 percent since 1973 while the average annual rate of change in the CPI over this

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[56] Inter-Agency Working Group on Social Cost of Carbon, *Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under E.O. 12866* (Aug. 2016), available at https://www.epa.gov/sites/production/files/2016-12/documents/sc_co2_tsd_august_2016.pdf (last accessed Oct. 26, 2018).

[57] Katharine Ricke, Laurent Drouet, Ken Caldeira, and Massimo Tavoni, "Country-level Social Costs of Carbon," 8 *Nature Climate Change* 895-900 (Sept. 24, 2018).

[58] *See* IPCC, Working Group I, *Climate Change 2001: The Scientific Basis*, at § 6.12.1 (2001), available at www.ipcc.ch/ipccreports/tar/wg1/index.php?idp=247 (last accessed Oct. 26, 2018).

[59] EPA, Greenhouse Gas Emissions: Understanding Global Warming Potentials, https://www.epa.gov/ghgemissions/understanding-global-warming-potentials (last accessed Oct. 26, 2018).

period has been 5.0 percent, implying a real 10-year rate of 3.1 percent,"[60] when in fact the yield on 10-year Treasury notes has averaged 2.59% and the CPI increase has averaged 1.69% over the past 10 years (2008-2017).[61] Following OMB's reasoning, an up-to-date estimate of the social rate of time preference is 0.9% (2.6% minus 1.7%), far lower than the minimum 3% discount rate that EPA chose. Considering the lower social rate of time preference and the very long-term effects of CO_2 emissions, a discount rate of between 0% and 1% would be more appropriate than the 3% and 7% EPA used in the ACE proposal.

EPA should have chosen a much lower discount rate had it complied with OMB's guidance in Circular A-4 regarding intergenerational impacts. Circular A-4 explains that "special ethical considerations arise when comparing benefits and costs across generations," and it may be "ethically impermissible to discount the utility of future generations." Even where a discount rate is applied, it should be "at a lower rate than for intragenerational analysis." Because the effects of today's CO_2 emissions will be felt for many generations, EPA must consider a discount rate in the 0% to 1% range, consistent with OMB's guidance.

D. EPA's Integrated Planning Model runs were biased to underestimate excess emissions from heat rate improvements.

EPA's emissions forecasts using the Integrated Planning Model purporting to show somewhat decreased CO_2 and other air pollution emissions during the analysis years (2023-2037) are biased to overestimate emissions for the No CPP alternative baseline, and to underestimate emissions for the policy scenarios. The No CPP alternative baseline IPM run does not allow the coal EGUs to choose any HRIs. In the description of the No CPP case, EPA makes this clear: "This illustrative scenario does not apply any standards of performance under section 111(d) of the CAA for CO_2 emissions from existing sources. Furthermore, in this scenario, it is assumed that no source adopts any heat rate improvements." RIA at 3-8.

This is an artificial constraint on the No CPP scenario because EGUs would implement some level of HRIs in the absence of the ACE rule for purely economic reasons, i.e. because coal EGUs would decide that they could improve their profitability. Examination of the 2% HRI policy case suggests that this would occur. For the 2% HRI scenario EPA assumed that "this scenario requires a source to improve its heat rate by 2 percent, at a capital cost of $50/kW. The source can either adopt the improvement or retire, based upon the prevailing economics in the

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[60] U.S. Office of Management and Budget, *Circular A-4: Regulatory Analysis* (Sept. 17, 2003), available at https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf (last accessed Oct. 26, 2018).

[61] *See* MacroTrends.net, 10 Year Treasury Rate—54 Year Historical Chart, https://www.macrotrends.net/2016/10-year-treasury-bond-rate-yield-chart (last accessed Oct. 26, 2018) (showing average annual yield of 10-year Treasury notes, for which the average over the ten years from 2008-2017 is 2.59%); Federal Reserve Bank of Minneapolis, Consumer Price Index 1913-present, https://www.minneapolisfed.org/community/financial-and-economic-education/cpi-calculator-information/consumer-price-index-and-inflation-rates-1913 (last accessed Oct. 26, 2018) (showing CPI annual percent change, which averages 1.69% for the years 2008-2017).

model." RIA at 3-7. The 2% HRI policy scenario predicts increased generation for coal EGUs based on model economics, therefore at least some of these HRIs would be implemented in the No CPP alternative baseline scenario if allowed. Generation by coal EGUs increases in the 2% HRI policy scenario relative to the No CPP alternative baseline scenario, so these HRIs, which EPA claims would occur without the proposed NSR revisions, are being chosen because they are predicted to make coal EGUs more competitive. By not accounting for HRIs that would be undertaken even in the absence of the ACE rule, the No CPP alternative baseline case unreasonably over-estimates CO_2 emissions to justify the already marginal emissions decreases predicted for the policy scenarios.

The IPM runs are also biased to underestimate emissions for the policy scenarios because the model unreasonably assumes that none of the variances available to the states, such as for remaining useful life, are incorporated into the modeled scenarios. EPA explains that, "[f]or ease of modeling, in the illustrative policy scenarios, sources may adopt the assumed HRI level or may retire in the model, based on prevailing economics. However, it is possible that States may use opportunities afforded to them in the proposed rule when applying BSER to avoid implementing HRI and retirement of affected sources, and the scenarios do not capture this possibility." RIA at 1-19. The IPM runs ignore the likelihood that many old or inefficient coal plants will be allowed to continue operations with no HRIs because of state-granted variances, and that this will significantly increase emissions for the three policy scenarios.

E. EPA cannot rely on its authority to set BSER under Section 111(d) as grounds to require revisions to the NSR program.

The structure of the Clean Air Act does not permit EPA to bootstrap revisions to its NSR regulations adopted pursuant to Sections 160 through 179 by relying on the agency's separate obligation to define BSER under Section 111(d). NSR is intended to assure attainment and maintenance of NAAQS for new and modified major sources of air pollution. BSER is intended to prevent the endangerment of public health or welfare by air pollution from new and existing sources. Nothing in Section 160 through 179 permit EPA to compromise NSR by allowing existing sources to perform modifications exceeding the emission triggers of the NSR program for the sole purpose of implementing EPA's flawed BSER proposal. If existing coal-fired EGUs cannot carry out HRI without the proposed exemption from NSR requirements, as EPA maintains, then EPA must abandon its BSER proposal as well as its unlawful NSR revisions.

F. Eliminating the presumptive emissions standard and requiring States to make unit-by-unit BSER determinations is unduly burdensome on state regulators.

EPA's proposed elimination of a presumptive emission standard (by changing the definition of "emission guideline") would abdicate its critical role under the CAA to set a minimum level of GHG emission reduction to address endangerment from existing sources. New Jersey agrees with the comments submitted by the New York Attorney General describing

how eliminating the presumptive emission standard would be overly burdensome on state administrators by requiring them to propose and adopt a state plan for each affected unit.[62]

CONCLUSION

Because EPA's proposed rule is unsupported by the facts or law, EPA should abandon the proposal and proceed to implement the Clean Power Plan, or revise the proposal to ensure that emissions will decrease, in conformance with the Clean Air Act.

Respectfully submitted,

JOSEPH L. FIORDALISO
President
New Jersey Board
of Public Utilities

GURBIR S. GREWAL
Attorney General
of New Jersey

CATHERINE R. McCABE
Commissioner
New Jersey Department of
Environmental Protection

[62] Comments of the New York Attorney General, *supra* note 2, at Section VII.D.

Exhibit 1

Memorandum from Adam M. Kushner, Director, Air Enforcement Division,
EPA Office of Enforcement and Compliance Assurance, on
Draft New Source Review Clean Air Interstate Rule
and Attachment A thereto (Aug. 25, 2005)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Enforcement Confidential and Deliberative
Privileged and Confidential

MEMORANDUM

To: William Harnett, Director
IPTID/OAQPS

From: Adam M. Kushner, Director
AED/OECA

Subject: Air Enforcement Division's Comments on the Draft New Source Review Clean Air Interstate Rule (August 24, 2005 draft)

Date: August 25, 2005

The Air Enforcement Division (AED) has reviewed the draft New Source Review Clean Air Interstate Rule (August 24, 2005 draft) and has significant concerns about the test proposed and the positions taken in this proposed rule. The proposed rule will adversely impact our enforcement cases and is largely unenforceable as written. AED's concerns are outlined in more detail below.

AED received the latest (and substantially revised) draft of the proposed rule on August 24th. The proposed rule represents a significant departure from heretofore applied New Source Review (NSR) emissions tests for electric generating units (EGUs). We are diligently working to assess the impact the proposed rule will have on both the filed cases as well as our ability to bring future enforcement actions, as appropriate. In addition, we are assessing the relative enforceability of the proposed rule as drafted. While we have completed a good deal of work (which we share below), our work to assess the impact of the rule continues. We will be certain to share with you the additional work we perform as it becomes available.

We will not restate our prior general comments on earlier drafts of the proposed rule as contained in our memoranda of June 30, 2005 and August 18, 2005. However, to the extent that the latest proposed draft of the rule does not reflect those comments, we again request that such comments be addressed in subsequent drafts of the proposed rule. Thank you for the opportunity to comment on this draft and I look forward to discussing these matters with you.

The Emissions Tests

We stated in the draft rule that one of its purposes is to ensure that existing sources that increase their operating capacity be subject to major NSR permitting. In the section of the draft rule entitled "Significant Emission Rates," OAR states:

> By eliminating the use of a significant rate, we balance the differences in these tests, and focus permitting authority resources on reviewing all changes that result in increases in existing capacity. We believe that this result is consistent with our interpretation of Congressional intent in that it assures that, at a minimum, capacity increases undergo major NSR review.

See Draft Rule at p. 23.[1]

To assess whether the proposed alternative applicability test(s) in the rule in fact preserve EPA's stated intention to capture modifications that increase emissions as a result of an increase of capacity, AED analyzed emissions data obtained from EPA's Clean Air Markets Division from units with known capacity increases. AED evaluated such data both pre- and post-change. The changes selected for analysis were based on data availability. The results of our analysis are set forth in Attachment A to this memorandum.

As currently written, the draft rule sets forth two possible methods that an EGU could apply in assessing whether or not a change would trigger major NSR. As we understand the "achievable" emissions test proposal, an EGU must obtain a major NSR permit if the modification to be made increases the maximum achievable hourly emissions.[2] To apply the proposed test, an EGU would first select a maximum achievable hourly emission rate that could have been obtained within the five years before the change. It would then project what the maximum achievable hourly emission rate could be after the change. If the projection shows that the change would cause an increase in the maximum achievable hourly emission rate, the source would trigger major NSR and would need to apply for and obtain a pre-construction permit before performing the change.

AED believes that a utility would have many ways to show that a particular capacity is or was theoretically achievable, which makes analysis of the impact of the test difficult and application of the test largely unenforceable. Because most of the information and data that might inform application of the test would be solely in the possession of the EGU (under the draft

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[1] As noted elsewhere in this memorandum, AED believes that conflating the emissions test for triggering NSR with the NSPS emissions test is contrary to Congressional intent. See *State of New York v. EPA*, Slip op. at pp. 9-11, 24-26.

[2] Compare Definition of "major emitting facility" at CAA Section 169 (1) ("stationary sources which emit or have the potential to emit , one hundred tons per year or more."

proposal as written), a permitting authority would have exceedingly difficult time assessing whether or not a change at an EGU in fact triggered NSR. Thus, this theoretical achievable test creates a subjective test leading to a "battle of the experts," and consequently greatly handicaps the efficient administration of a meaningful pre-construction permitting program. The proposed test will make it difficult for both a utility and the regulators to assess the compliance status of an EGU.

An illustration of the problems associated with such a test is contained in our analysis of a project at Case Study # 2. See Attachment A page 12. See Attachment A. In this example, a reasonable theoretical "achievable" emission rate was calculated using the methodology described in this memorandum. Using this method, the achievable hourly emission rate was calculated to be more than ten times higher than the average hourly emission rate in the five-year period prior to the change. Comparison of this baseline to a calculated maximum achievable emission rate after the change would make meaningful analysis of the change impossible, because the achievable emission rate is not a clear indicator of capacity. Any increase in capacity or emissions caused by this change would not register because the comparison takes place at a level 10 times higher than representative emission rates of the unit.

In addition, because NSR is a pre-construction permitting program, the unit would retain the ability to apply for a limit at this achievable hourly rate. Since the rate is not based on representative emissions and is not indicative of capacity, a source could increase capacity significantly and still not exceed the limit. Because the analyses in the attachment were performed using actual operating data, and, presumably, the rule would not restrict the calculation of achievable emissions, we would expect a source to calculate achievable emission rates higher than those in these examples by using theoretical heat rates or emission rates, exacerbating the enforceability problem.

Because of the difficulties associated with anticipating all of the arguments which a utility could make as to what is or is not "achievable," AED used actual maximum historical emissions coupled with maximum heat rate data to analyze the "achievable" test. AED believes that this approach is more conservative, and consequently probative of the practical implications of the proposed "achievable" test (i.e., it has a better chance of triggering the NSR pre-construction permitting requirements) than applying the "achievable" test to determine what emission rates were potentially or theoretically "achievable.

For each case study, the baseline level is represented as a horizontal line across the graph. The maximum achievable hourly baseline represented in the attached case studies were calculated using the maximum heat rate, expressed in mmbtu/hr, multiplied by the maximum emission rate, expressed in lbs/mmbtu, within the years prior to the change, but no earlier than 5 years before the

modification.[3] Significantly, these two input values (heat rate and emission rate) may not have been (and are not typically in the real world) temporally coincidental. AED believes that the draft rule allows such an interpretation, although we strongly suggest that there would be no basis for characterizing such an approach as representative of operations of an EGU either prior or subsequent to a change.

AED further understands that we are proposing to seek comment on an alternative emissions test that would use an "achieved" baseline calculated by using the maximum hourly emission rate, in lbs/hr, in the 5 years prior to the change. As we understand this proposal, an EGU must obtain a major NSR permit if the change is projected to cause an emissions increase above an actually achieved maximum hourly emission rate. An EGU would first select a maximum achieved hourly emission rate that occurred within the five years before the change. It would then project what the maximum hourly emission rate could be after the change. If the projection showed that the change would cause an increase in the hourly emission rate, the source would need to obtain a major NSR permit before performing the change.

The achieved baselines represented in the attached case studies set forth in Attachment A, were selected as the maximum hourly emission rate, expressed in lbs/hr, within the years prior to the change, but no earlier than 5 years before the modification. No calculation of this baseline was necessary because the CAMD data contain these values.[4] As with our previous analysis, AED compared the baseline level to actual emission rates that occurred after the change to identify any hourly emissions rates which exceeded the baseline level.

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[3] Data collected by the Clean Air Markets Division's is available for the calendar year beginning in 1995. As a consequence, where a change occurred before 2000, less than five years of emissions data was available to be used in determining baseline emissions. Please also note that for some units, we have identified a very small subset of hourly data which is clearly outside a reasonable operational range, which we attribute to data substitution, continuous emission monitor malfunction or other reasons. There was probably no need for CAMD to address these data issues in that the acid rain program evaluates EGU performance on an annual, not hourly, basis. For this subset we have applied a data correction factor which eliminated the extreme 0.1% of heat rate data points only. After application of this correction factor, all the data seemed to fall within reasonable operating parameters. See e.g., Comanche analysis at Attachment A. As noted above and elsewhere in this memorandum, the proposed rule does not allow for any data correction nor does it have any requirement that the maximum achievable hourly rate or emission rate be representative of operating conditions.

[4] Note that the preamble states that these two baseline should be similar. As illustrated in the attached graphs, this is not the case. The analysis of this "achieved" proposal contains the same data limitations noted above.

The attached analysis shows that even where we have known capacity increases, the proposed test and the test for which EPA seeks comments, does not fulfill the stated intent of the proposed regulation. Consequently, one can only conclude from application of the so-called "achievable" test that no "change" causing an emissions increase (capacity or otherwise) at an EGU would trigger NSR requiring the source to seek a pre-construction permit from its permitting authority and install pollution controls. Moreover, one can only conclude from application of the so-called "achieved" test that only under the rarest of operational circumstances would a "change" causing an emissions increase (capacity or otherwise) at an EGU trigger NSR requiring the source to seek a pre-construction permit.

Specific Comments on Proposed Rule

The following are AED's specific comments to the August 24, 2005 draft rule:

Language: Pages 3, 11: "The revised applicability test is the same as that in the New Source Performance Standards Program under CAA Section 111."

Comment: We suggest that you modify the sentence as follows: "The revised applicability test is the same as that for the emissions test for the New Source Performance Standards Program." The modified sentence emphasizes that it is the emissions aspect of the new source performance standards (NSPS) program applicability test only that is being purportedly adopted for purposes of measuring emissions increases in the NSR program. Such an approach will give us a better chance of disentangling the proposed rule from the issues raised in the *Duke* and *New York* matters, while minimizing collateral and unintentional adverse impacts on the NSPS program for other non-EGU sources. We believe, however, a better approach would be to not tinker with the NSR test at all. Nonetheless, should a decision be made to alter the NSR applicability test for EGUs we suggest that a new and distinct NSR rate-based test be developed that, at a minimum, in fact captures emission increases that are the result of unit expansions and design changes. We suggest that the proposed rule be conformed in its entirety to conform to this recommendation.

Language: Pages 3 and 11: "we are proposing to compare the *maximum hourly emissions achievable* at that unit during the past five years to the maximum hourly emissions achievable at that unit after the change . . ." Compare to page 16: "by comparing the pre-change *maximum achievable actual hourly emission rate* to the post-change maximum achievable actual hourly emission rate assuming the source is operating at its maximum operating capacity.

Comment: The language used to identify the test should be referenced consistently

throughout the draft rule. Based on the language offered it is difficult to discern whether OAR intends to propose a "maximum achievable hourly emission rate" test or a "maximum achievable *actual* hourly emission rate" test. AED prefers the latter formulation.

Language: Page 12: "There is little additional benefit to be gained by applying the requirements of the major NSR program to existing sources that modify without changing their current operating capacity."

Comment: As discussed in detail above in the Section of this memorandum entitled "The Emissions Test," the "achievable" test offered by OAR in the draft rule is not triggered by an increase in "current operating capacity," and the "achieved" test is triggered only in rare instances.

Language Page 12: "We designed these regulatory systems [cap-and-trade] to encourage reductions from the higher, less efficient emitters . . . ." *See also* p. 37

Comment: While it may be true that the intent of EPA in fashioning the cap-and-trade programs over the years is to encourage reductions from the higher, less efficient emitters, and while in fact it may be the case that some utilities have elected to install controls on those dirtier plants, our experience demonstrates that in fact many "higher, less efficient emitters" have not been controlled.

Language: Page 11: "[f]or existing EGUs, we are proposing to compare the maximum hourly emissions achievable at that unit during the past five years to the maximum hourly emissions achievable at that unit after the change to determine NSR applicability.
Page 21: "As a practical matter, little difference exists between our proposed maximum achievable hourly emissions test and this [achieved] alternative. Both approaches provide a measure of a source's actual emissions."

Comments: As noted above in the Section of this memorandum entitled "The Emissions Test," it is unclear how a maximum hourly emissions achievable test would be applied in practice, as there are many ways one could formulate such a test or demonstrate what is "achievable." Consequently, it is difficult to compare the two tests and the question remains as to how either test measures actual emissions when neither consider hours of operation.

As written the draft rule would permit a utility to rely on *any* "maximum hourly achievable emissions" to both establish an emissions baseline and to project its emissions post change. This is problematic because the rule fails to proscribe that the maximum hourly achievable emissions be representative of typical operating conditions and be representative of good air pollution control practices. Failure to establish data standards will afford a utility an opportunity to rely on artificially high, non-representative emissions data. For this reason, application of any test should require that the data used by a utility be representative of typical operating conditions and good air pollution control practices.

The stated intent of the rule is to capture emissions increases that are the result of modifications that are caused by an increase in design capacity. We have two overarching concerns with these statements. First, an increase in achievable or achieved emissions is not in and of itself and indicator of an increase in capacity. Second, the emissions impact from recapturing lost utilization or through life extension projects are equal to (and in many instances) greater than emissions increases that may result from capacity and expansion projects. Thus, there is no rational basis for establishing a test that excludes emissions increases associated with boiler changes that are intended to recapture lost utilization or extend the life of a unit. Third, as proposed, and as demonstrated in Attachment A, NSR is not necessarily triggered where there *are* capacity increases, notwithstanding significant emission increases.

Language: Page 13: "Once the Court's opinion is entered into the record (what's correct terminology for this)"

Comment: There is no mention that EPA is seeking reconsideration of either or both the *Duke* and/or *New York v. EPA* decisions. In addition, the summaries of both decisions contained on pages 75-77 is inaccurate as it is incomplete. Given the pendency of both decisions, it is unwise to comment on either decision at this time in a way that may hurt our chances in either case, should an appeal be granted.

The discussion of the D.C. Circuit's decision in *Alabama Power* on pages 78-79 of the proposed rule also re-characterizes that decision in a way that is contrary to one of the central holdings of the D.C. Circuit in that case. In *Alabama Power*, the D.C. Circuit remanded an EPA regulation exempting changes below a certain size from PSD coverage, finding that EPA could grant only limited exemptions from the permitting requirements of the Act. *Alabama Power*, 636 F.2d at 400. The discussion of the *Alabama Power* decision on pages 78-79 of the proposed rule glosses over the fundamental point that exemptions to the term modification should be narrowly construed. The D.C. Circuit also noted that the Act would

clearly require "grandfathered" industries to undergo PSD review if they made modifications, even though this would be costly and inconvenient: "If these plants increase pollution, they will generally need a permit. Exceptions to this rule will occur when the increases are *de minimis*, and when the increases are offset by contemporaneous decreases of pollutants. . . ." 636 F. 2d at 400.

Language: Footnote 2

Comment: There are many instances in the draft rule (including footnote 2) where the drafting of the rule appears incomplete. AED reserves its comments on those portions of the draft until such language is offered for review.

Language: Page 15, "Unlike our NSPS regulations, our major NSR regulations do not contain a specific definition of the term "modification."

Comment: While perhaps technically correct, it is misleading to say that the NSR regulations do not contain a definition of "modification" when in fact we have been effectively arguing to the contrary in our briefs in the various court proceedings at which the issue has been joined. We suggest revising this statement to comport with what has been stated in our filed briefs, which reflects the consensus amongst all the interested EPA offices.

Language: Page 20 and the paragraph that follows: "[w]e are not proposing to change the types of physical or operational changes regulated by the major NSR program."

Comment: While it is true that the draft rule does not in fact re-define what physical or operational changes are modifications for NSR purposes, the effect of the rule is to make very few, if any, changes modifications that trigger NSR.

Language: Page 21: "The pre-change maximum actual hourly emission rate would be the *average rate* at which the EGU actually emitted the pollutant within the 5-year period immediately before the physical or operational change."

Comment: This language describes the "slightly revised" version of the proposed maximum achievable hourly emissions test, based on assessing an emission unit's historical maximum hourly emissions. First, "average rate" is a new term and needs to be defined to be enforceable. Second, see comments below regarding enforceability generally of these proposals (i.e., lack of record keeping/reporting requirements, discussion of prospective only effect of the new test). Third, see comments above, in the context of discussing the proposed "achievable" regarding the need to ensure that a source relies on data that is typical of its operations and representative of good

air pollution control practices. The same concerns are at issue with respect to the proposed "achieved" test.

Language: Page 21: "Both approaches provide a measure of a source's actual emissions."

Comment: The "achievable" test is a measure of the "potential" emissions of a source (and not an accurate one at that) in the classic and historic sense of the use of that term. Unless the draft rule incorporates standards regarding representativeness of data and data correction, neither the "achievable" or "achieved" test can be characterized as an accurate measure of actual emissions as a source would be able to inflate its baseline or change its practices to ensure that NSR was never triggered.

Moreover, the draft proposed rule should indicate explicitly that EPA is considering whether the NSPS test is an "actuals" test in the sense meant by the D.C. Circuit in NY v. EPA. The proposed rule should further highlight that EPA is taking comment on that particular issue. Doing so (rather than indicating or implying that EPA has already so decided) will (1) make the rule more defensible by defusing criticism that EPA without explanation (i.e., arbitrarily and capriciously) reversed course from the position expressed in the enforcement briefs (in Duke most notably) and (2) keep the Fourth Circuit (and other courts with pending enforcement actions) from accusing EPA of being duplicitous (or at least minimize that chance). Taking a definitive position in a proposal rather than in a final rule is not necessary, and we fail to see how it gains us anything rather than merely inviting attack in both the inevitable petitions for review and the pending enforcement actions.

Adjustments could be made in this vein to page 21 (for instance, taking out the sentence "Both approaches provide a measure of a source's actual emissions.") and the paragraph on pages 82-83 (the paragraph beginning "As we explained in the statutory and regulatory background section, we codified the maximum hourly emissions test in the NSPS program as a way of measuring actual emissions to the atmosphere."). We could there include a sentence or a footnote stating: "For such reasons, some parties have suggested that the NSPS test measures 'actual' emissions in the sense meant by the D.C. Circuit in New York v. EPA. We invite comment on that issue." Gratuitous references to the NSPS test being an "actuals" test (e.g., on page 16, in the repeated phrase "maximum achievable actual hourly emission rate") should also be removed.

Language: Page 22: We are concerned that adopting this alternative approach would undermine some of secondary policy objectives supporting this proposal. We stated that two of our goals for this proposal are to streamline the regulatory requirements applying to EGUs by allowing EGUs to apply the same test for

measuring emissions increases from modifications under both the NSPS program and NSR program, and to provide some nationwide consistency in the emissions calculation procedures in light of the Fourth Circuit's decision in Duke.

Comment: These goals are not met under either an achievable or achieved test because: 1) the proposed NSR emissions test does not accurately reflect the current NSPS emissions test; 2) the proposed NSR test and the current NSPS test are not the same because differences will still remain in application of the term "modification" as recognized on page 20 of the draft proposed rule; 3) the proposed new NSR emissions test and the current NSPS emissions test will still be different for PM and CO after promulgation of this rule.

Language: Page 23, and seriatim: The use of the term "significant rates," "significant emissions rate."

Comment: The draft rule is unclear by what is meant by "significant emissions rates." The discussion appears to distinguish between "significant rates" and significant thresholds" but the loose use of those terms causes the discussion to be confusing.

Consistent with the stated intent of the rule, in AED's view, no significance threshold (level) should attach to emissions increases associated with an increase in design capacity.

Language: Page 28: "We believe that implementing our proposed maximum achievable hourly emissions rate test for EGUs offers significant benefits over the existing actual-to-projected actuals emissions test" and the paragraph that follows.

Comment: Since as written NSR would never be triggered it is fair to say that the so-called "alternative applicability test" would reduce the administrative burdens.

Language: Page 29, "It reduces record keeping and reporting burdens on sources because compliance will no longer rely on synthesizing emissions data into rolling average emissions."

Comment: The referenced statement is unclear. This is the only instance in the entire proposal where either record keeping or reporting requirements are discussed. The proposal does not put any obligation on the source to maintain records to support a claim that it has not triggered NSR. Significantly, enforcement and enforcement impacts of the proposed rule are not addressed *at all* in the proposal. Absent record keeping and reporting requirements the rule is effectively unenforceable. See *State of New York v. EPA.* Further, the records that an EGU maintains that would bear on a

determination of whether NSR is triggered as a result of a change is no different under the current test than under the proposed test. Moreover, a sources obligation to maintain such records exists independent of the NSR program. For example, hourly data and annual emissions for SO2 and NOx are recorded and reported by a source to EPA in order to comply with Title IV and now CAIR. Similarly, records of changes made to a unit are recorded and reported independent of the NSR program -- i.e., for, inter alia, the IRS and public utility commissions.

Language: Page 29: The draft rule does not state that it is intended to apply to prospective conduct only.

Comment: We again urge you to include in the proposed rule the same language that was inserted into the equipment replacement proposal regarding enforcement and that the proposal does not affect past/future conduct (and associated liabilities) of the source. In addition, we must insist that we review the proposed language to ensure that it addresses our concerns. We recite some of the relevant ERP language below with conforming changes noted in brackets:

> Today's rule provides revisions to the major NSR program to specify [a new emissions test that will become applicable] in the future. As recognized by the U.S. Supreme Court, an agency may not promulgate retroactive rules absent express congressional authority. See Bowen v. Georgetown Univ. Hosp., 488 U.S. 204, 208, 102 L. Ed. 2d 493, 109 S. Ct. 468 (1988). The CAA contains no such expressed grant of authority, and we do not intend by our actions today to create retroactive applicability for today's rule. 42 U.S.C. 7401 et seq. Today's rule applies only to conduct that occurs after the rule's effective date. None of today's rule revisions apply to any changes that are the subject of existing enforcement actions that the Agency has brought and none constitute a defense thereto. Furthermore, prior applicability determinations on major modifications that result in control requirements in an NSR permit that currently applies to a source remain valid and enforceable as to that source. [Once effective,] if you subsequently undertake an activity that does not meet the applicable provisions of these new [provisions] and do not obtain a preconstruction permit if you are required to do so, you will be subject to any applicable enforcement provisions (including the possibility of citizens' suits) under the applicable sections of the CAA. Sanctions for violations of these provisions may include monetary penalties of up to $27,500 per day of violation, as well as the possibility of injunctive relief, which may include the requirement to install air pollution controls.

Language: Page 29: "The CMA Exhibit B Settlement Agreement" approach.

Comment: We have not reviewed the referenced settlement agreement and consequently we are unclear of its terms. Please forward a copy of the settlement agreement at the earliest possible opportunity.

Language: Page 41: "These analyses [by economists] assert that NSR requirements allow existing sources to operate under less stringent emissions standards than new sources."

Comment: Prior to EPA's coal-fired enforcement initiative few, if any, EGUs sought NSR pre-construction permits because of the industry-wide held view (rightly or wrongly) that changes to their boilers (no matter the magnitude) were routine and therefore exempt. However, in recent years many sources (both existing and new) have sought and obtained NSR permits. A review of those permits, the control requirements, and the emission limits required indicates that existing sources are operating under (in many instances) as, or more, stringent standards than new sources. We also note that much of the literature that is relied upon to support the efficiency and stringency arguments pre-date the coal-fired enforcement initiative.

Language: Page 54, Relationship of BART and CAIR, and discussion about non-CAIR units not subject to BART

Comment: There are several reasons why we believe that extending the alternative test to non-CAIR units and relying on BART to do so is misplaced. CAIR has a regional emission cap backstop for both NOx and SO2, BART does not. BART applies only to facilities constructed between 1962 and 1977, and only those that directly impact Class 1 areas. All non-CAIR EGUs constructed prior to 1962 or after 1977 would be receiving the benefit of the proposed new rule, but would not have the BART or CAIR backstop. BART applies to all major sources of NOx and SO2 (26 major source categories) and is not limited to just EGUs, creating arguments for other non-EGU sources to argue that the NSR alternative emissions test should apply to them. CAIR assumes NOx-controlled units will meet a presumptive limit of 0.05 lb/mmBtu and a regional limit of 0.125 lb/mmbtu in 2015. BART presumes that subject units will meet a presumptive limit between 0.15 - 0.62 lb/mmBtu for NOx and does not require a regional or national rate limit or ton cap. CAIR assumes SO2-controlled units will have removal efficiencies of approximately 98%. BART assumes SO2-controlled units will have removal efficiencies of between 90-95%, or even lower if using low sulfur coal. We have stated in the CAIR rule that BART is

not as effective as CAIR in obtaining emission reductions. Finally, NSR requires BACT or LAER at a source where there is a modification, but neither CAIR nor BART require the same.

Language: Pages 61-62, discussions about how CAIR and BART programs are expected to protect local air quality.

Comment: This issue is never really addressed. There is considerable discussion as to how CAIR will improve air quality throughout the Eastern United States, and there is little doubt that the emissions reductions that will be realized from implementation of CAIR represent a dramatic improvement from existing emissions levels. However, CAIR does not require a source to install BACT/LAER-type controls to meet its CAIR obligations (although out of necessity it may have to). Moreover, in the instance where a source might install BACT/LAER-type of controls there is nothing in CAIR that would require a source to operate those controls at BACT/LAER-levels or to even operate such equipment at all times. This is an issue because as we acknowledge in the CAIR rule making package and preamble some areas will remain in non-attainment even after full implementation of CAIR. Thus, we believe that NSR remains an important tool in ensuring that the Clean Air Act's air quality objectives are achieved, and once achieved maintained (as envisioned by Congress). For this reason, and as discussed above, we believe that so-called applicability test(s) as proposed does not comport with Congressional intent and should be revised consistent with the concerns reflected in the comments in this memorandum in the section entitled "The Emissions Test."

Language: Page 63, fn. 37: "As explained above, such new sources may take the form either of entirely new facilities or expanded or modified facilities, or of expanded or modified operations which result in substantially increased pollution. . . ."
Page 64, "we interpret the Congressional history to show that at a minimum, Congress was concerned about regulating new sources of emissions caused by expanding or modifying the existing capacity of operations, as the following two statements indicate . . . ."

Comment: This notion is fatal to our cases to the extent "expanded" is measured from design capacity or capacity at the time of original placement into service or original permitting. This also appears to be inconsistent with the D.C. Circuit decision in *Alabama Power*. This is Duke's, and every other Defendant's, favorite defense in the NSR enforcement cases: we have not expanded capacity and, consequently, NSR was not triggered. The views expressed in the draft rule are inconsistent with the D.C. Circuit's decision in *Alabama Power*, wherein the court rejected the idea that Congress intended to cover only physical changes that resulted in increased

operating capacity. The court noted that the legislative history indicates that one Senator thought this was the proper scope, but that Congress rejected this notion. The D.C. Circuit stated: "Describing the scope of the senate bill, Senator Buckley stated 'No significant deterioration' is a policy that has no effect on existing sources, unless a source undertakes a major expansion program. . . ." When this debate took place, the statutory language did not apply PSD preconstruction review to source "modification." In November 1977, the Senate and House passed technical amendments, one of which had the effect of defining "construction" to include "modifications." It was this new language that had the effect of overriding Senator Buckley's interpretation of the meaning of 'no significant deterioration.'" *Alabama Power*, 636 F.2d 323, 400 (D.C. Cir. 1979). We suggest that all references to expanded and congressional intent as to the NSPS be deleted.

Langauge: Page 68: "However, since the NSPS test is based on actual operating capacity rather than design capacity, we believe that the potential-to-potential terminology can be misleading, and prefer the name 'maximum achievable hourly emission rate' . . . ."

Comment: As demonstrated in "The Emissions Test" section of this memorandum, the proposed achievable test does not reflect emissions at operating capacity or even during typical operating conditions. Moreover, there is little ability for the permitting authority to meaningfully distinguish between operating and design capacity particularly where a utility conflates the two to support an inflated baseline.

Language: Page 76-77: *Duke Energy* discussion.

Comment: See discussion above regarding characterization of the status of the decision and EPA's request for rehearing *en banc*.

Language: Page 88, "In a 2003 (cite RMMR) rule, we articulate our position that activities designed to promote safety, reliability and efficiency of emissions units should not be subject to major NSR, yet it is often these types of projects that raise questions as whether post-change emissions are related to a change."

Comment: The ERP rationale should not be re-stated here without also acknowledging that the rule has been stayed. We suggest you delete this sentence altogether.

Language: "Major NSR Program"

Comment: Need to expressly and plainly state that the draft rule would be prospective only. As discussed above, we suggest lifting the "prospective only" language from the ERP and inserting it in the draft rule.

Conclusion

Thank you for the opportunity to comment on the draft rule. We believe that a good deal of additional work and analysis should be done before finalizing the proposed rule and making it available for public comment. Not only does the text of the preamble itself need to be revised to better identify what we are specifically proposing, but the impact of the proposed rule needs to be better understood. As you can see from our analysis, the proposed test(s) do not reflect the stated intent of the proposed rule -- *i.e.*, to have an increase in emissions associated with an increase in operating capacity trigger NSR pre-construction permitting requirements.

Attachment A
(Case Studies)

to

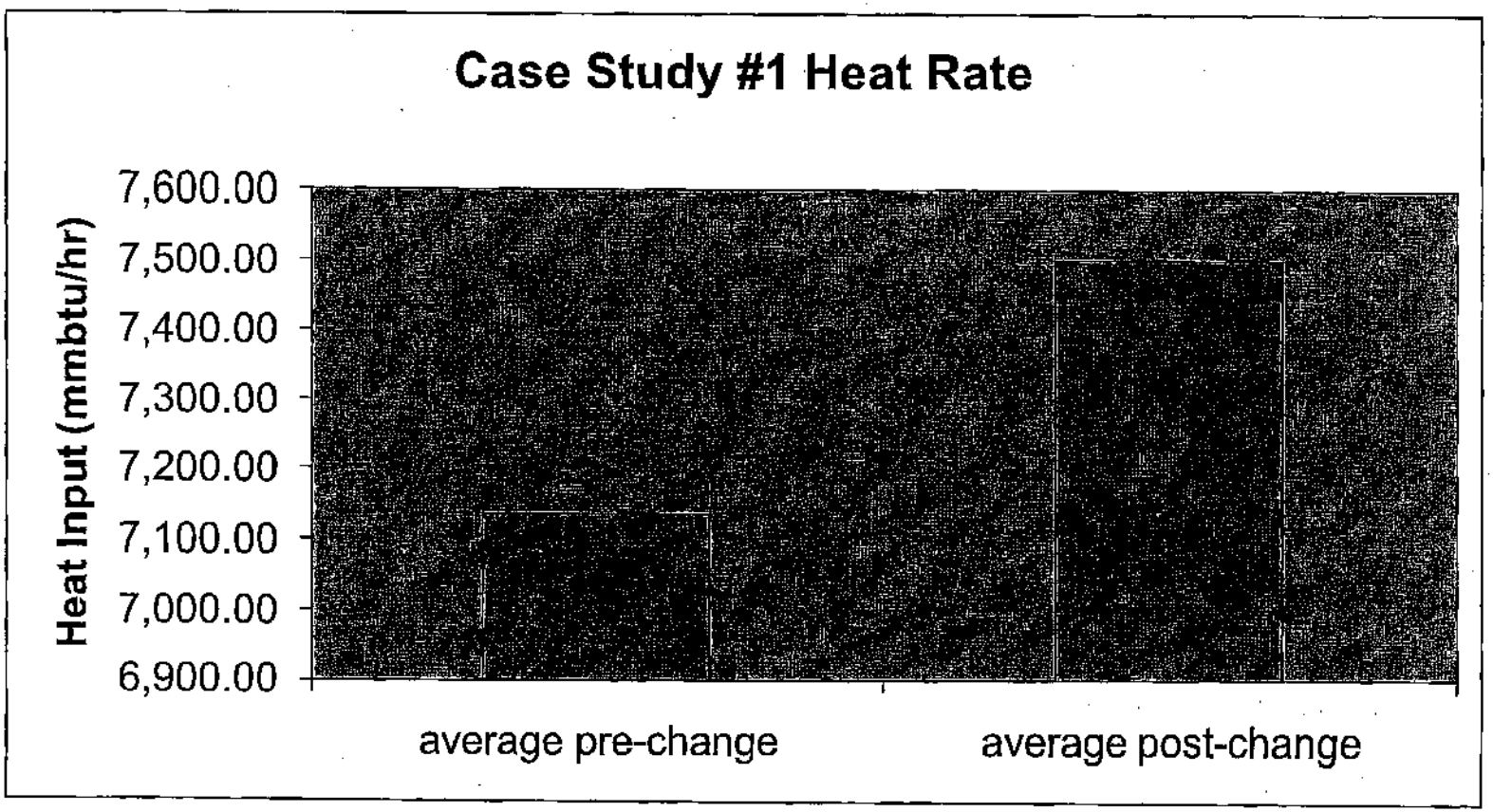
Air Enforcement Division's Comments on the Draft New Source Review Clean Air Interstate Rule (August 24, 2005 draft)

August 30, 2005

Case Study #1

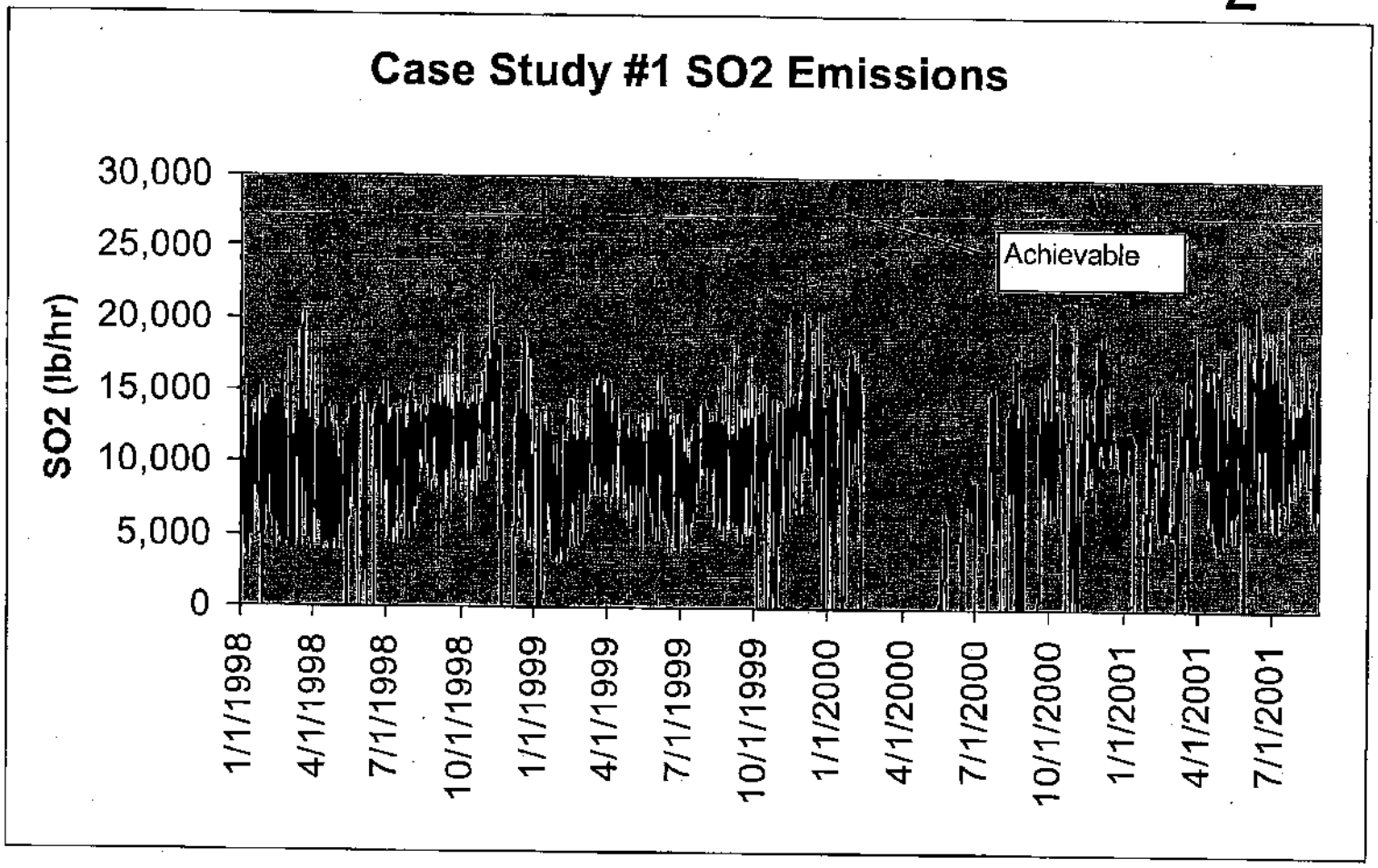
- 1,080 MW Unit.
- 2000 project -- redesign and replace economizer (increased surface area), replaced the horizontal reheater with upgraded material; and, replaced steam path.
- SO_2 emissions increased by 13,096 tons/year.

Was there an increase capacity?



Average Heat Input = Average hourly heat input available data from EPA Clean Air Markets Division (post 1994).

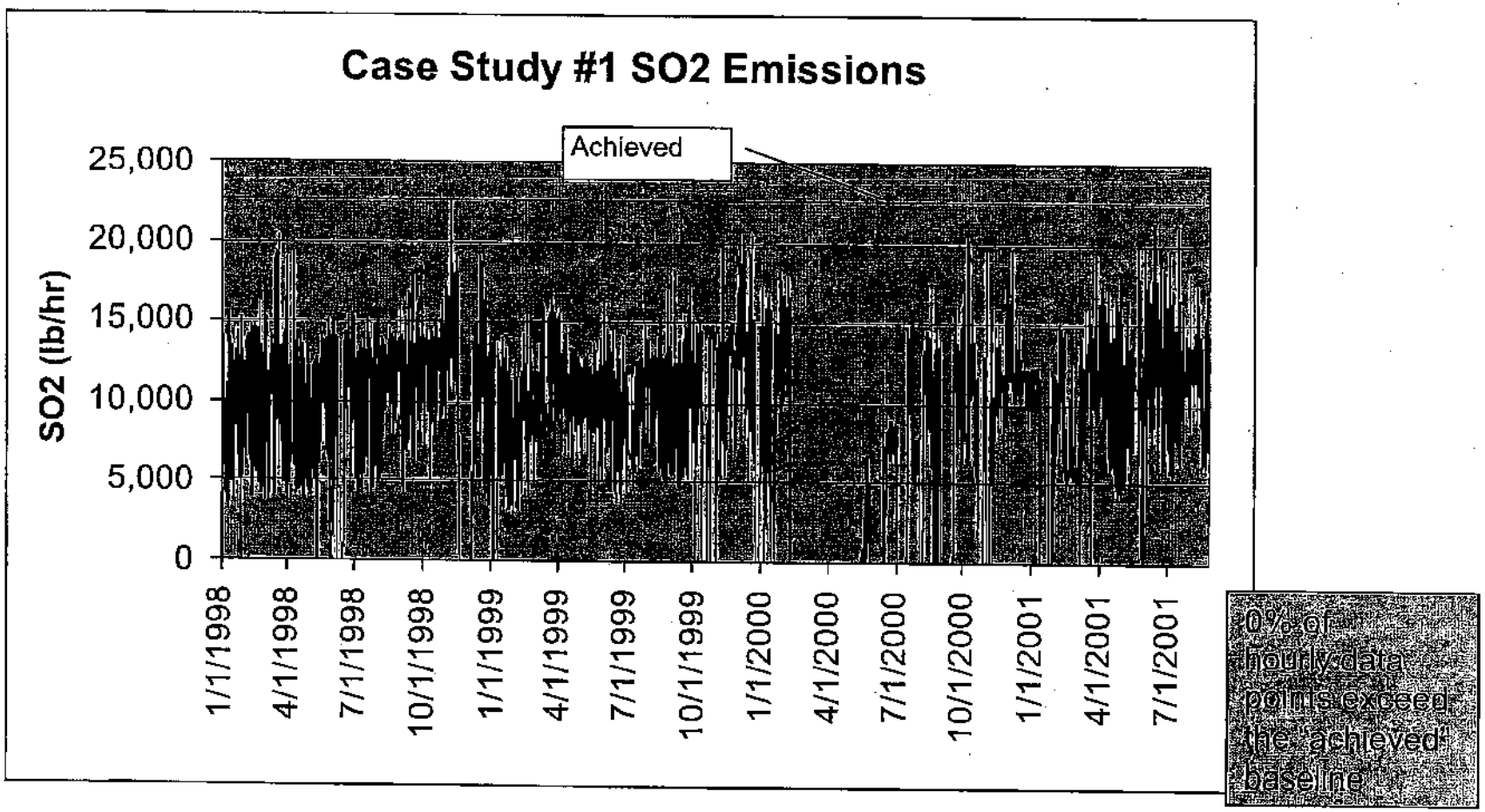
Maximum Achievable – SO_2



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division as reported.

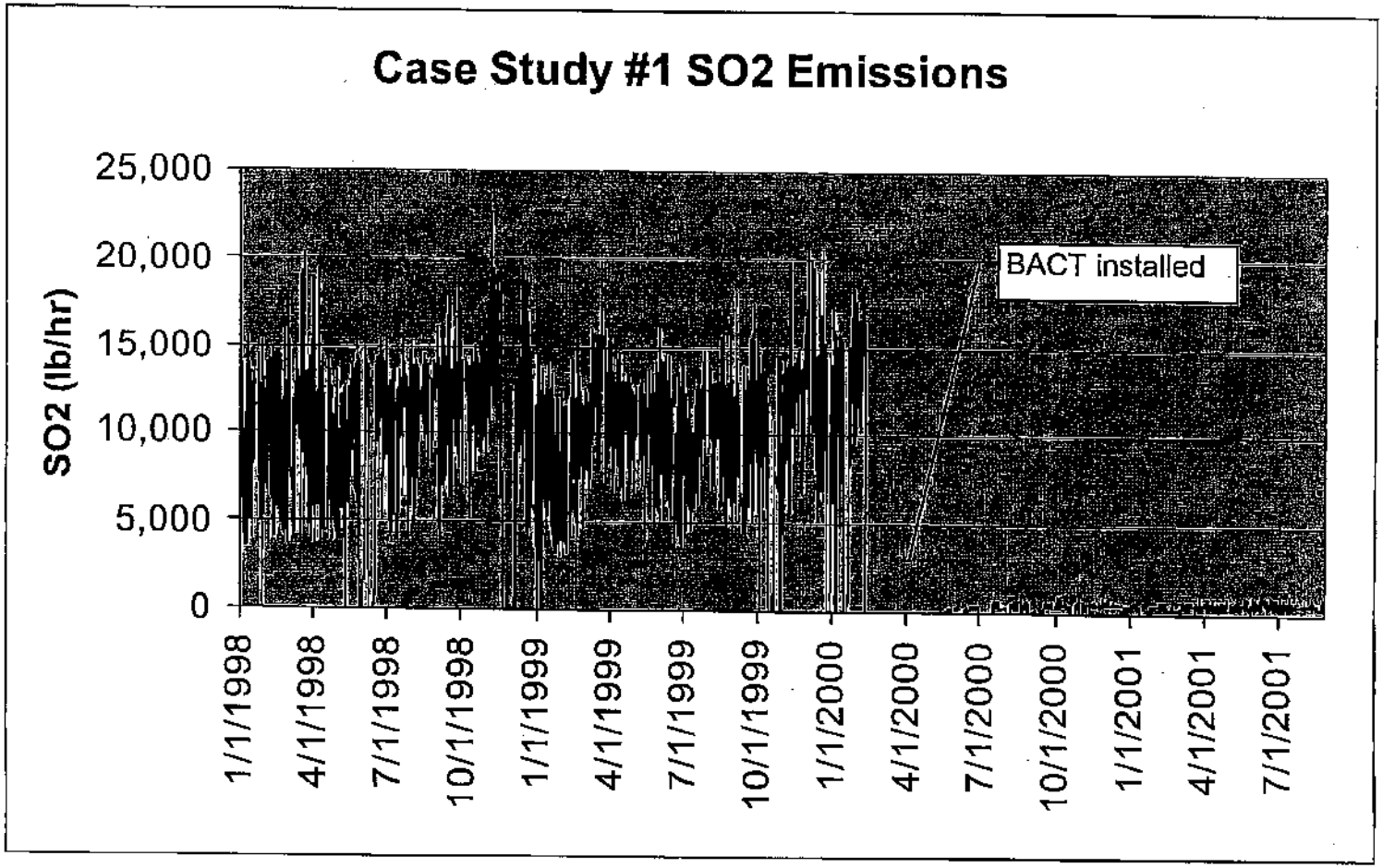
Maximum Achieved – SO_2



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

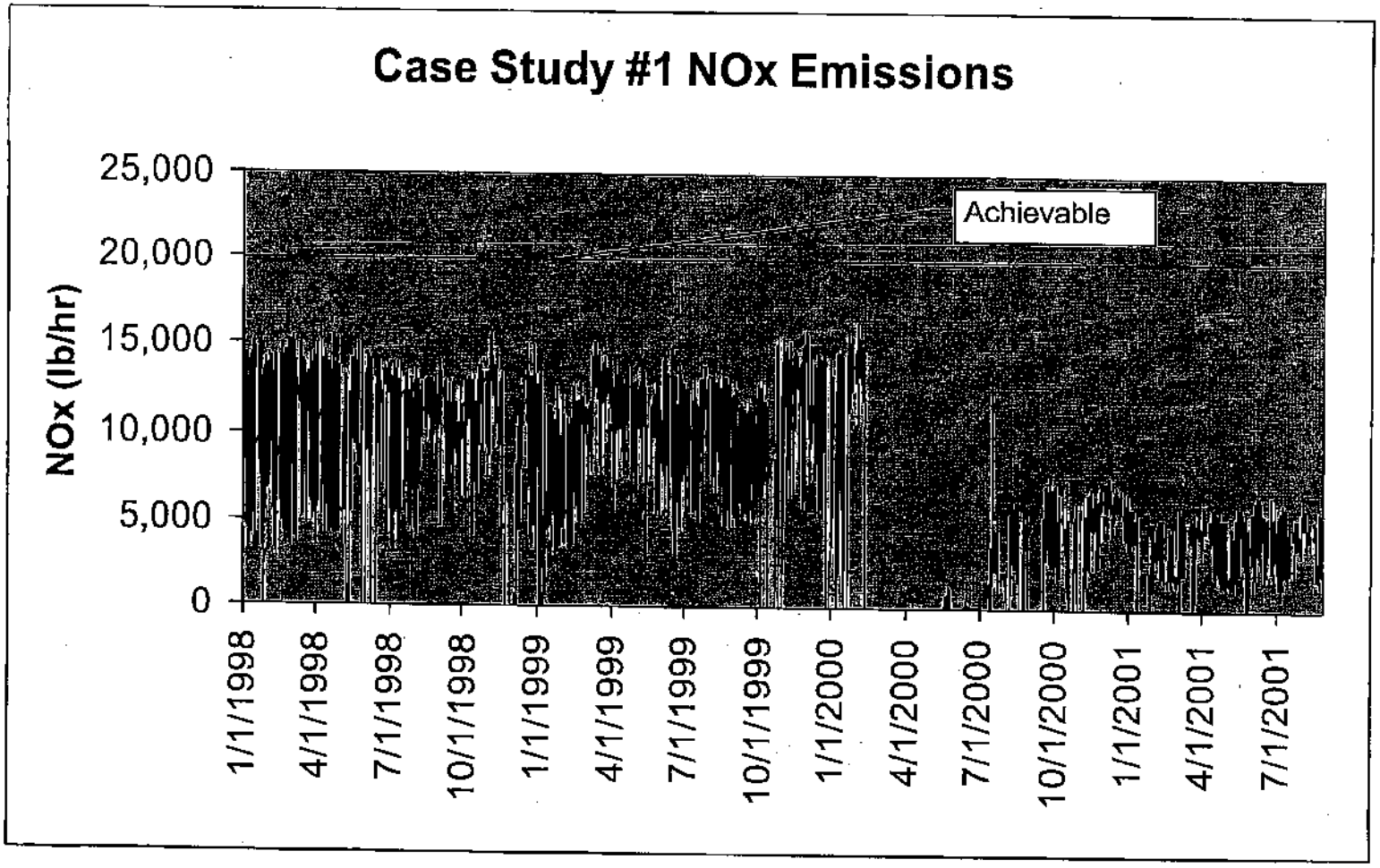
All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if SO_2 controls were installed?



SO_2 BACT assumed 95% emission reductions

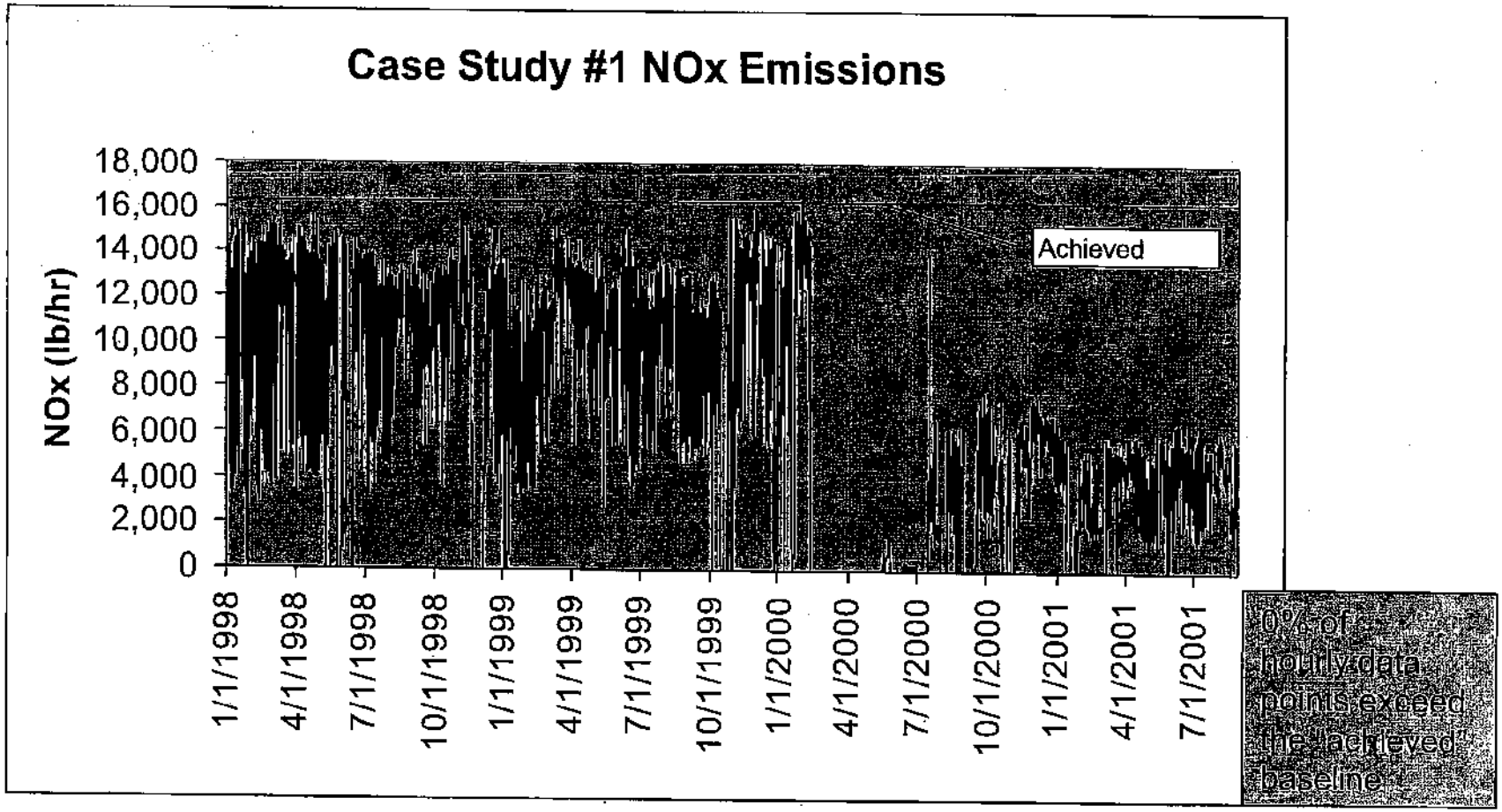
Maximum Achievable - NO_X



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division as reported.

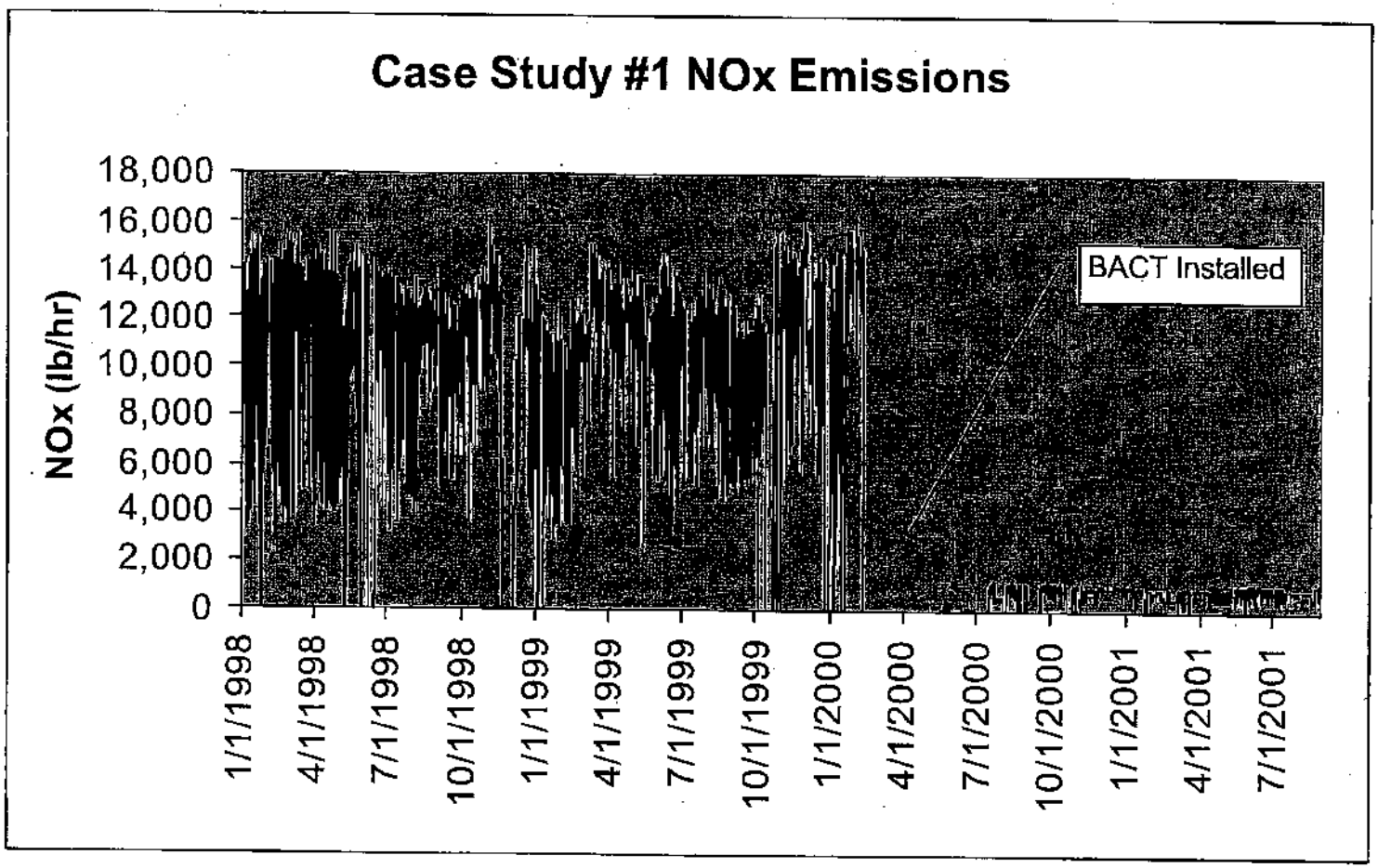
Maximum Achieved - NO_x



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if NO_X controls were installed?

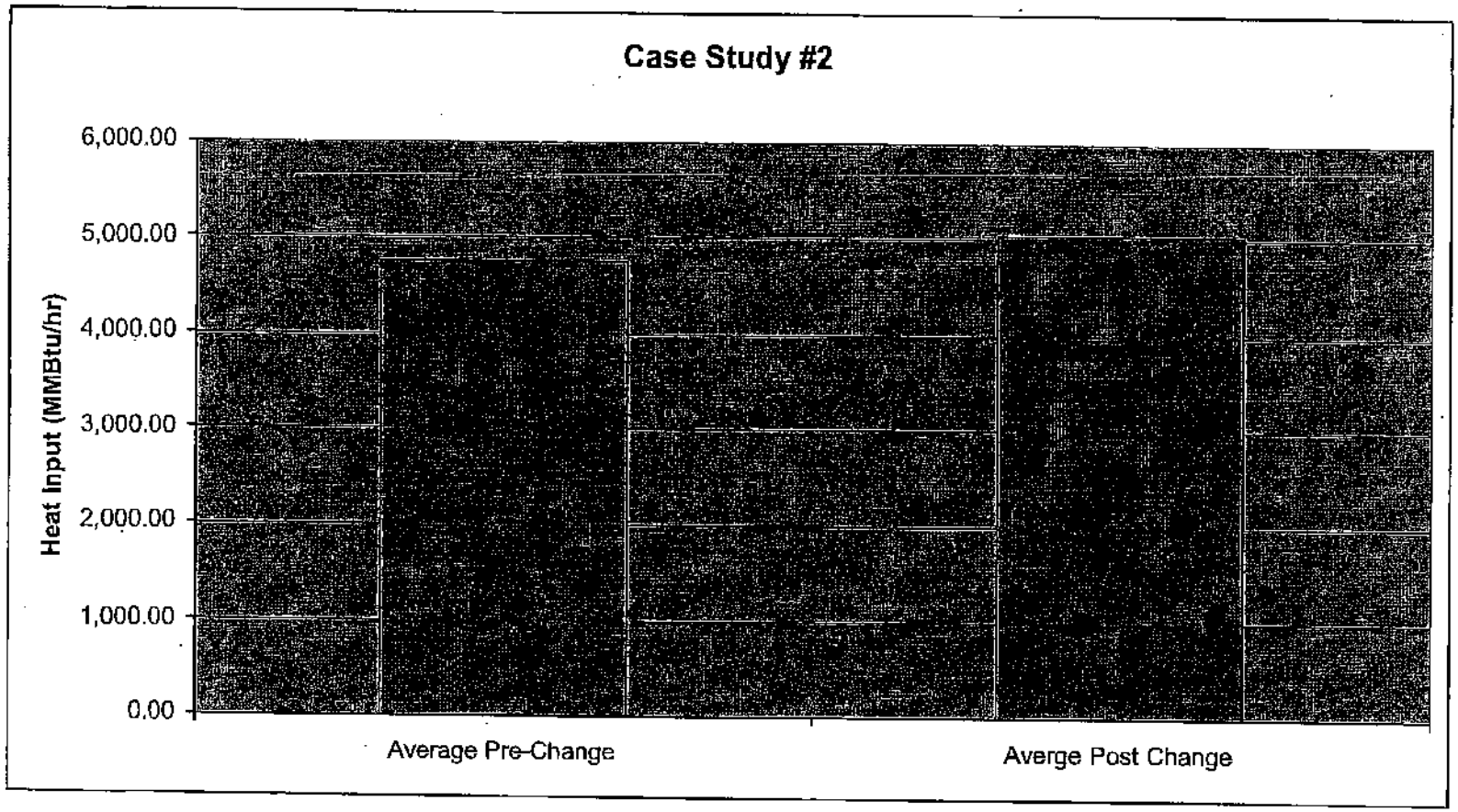


NO_X BACT assumed 0.100 lb/mmbtu

Case Study #2

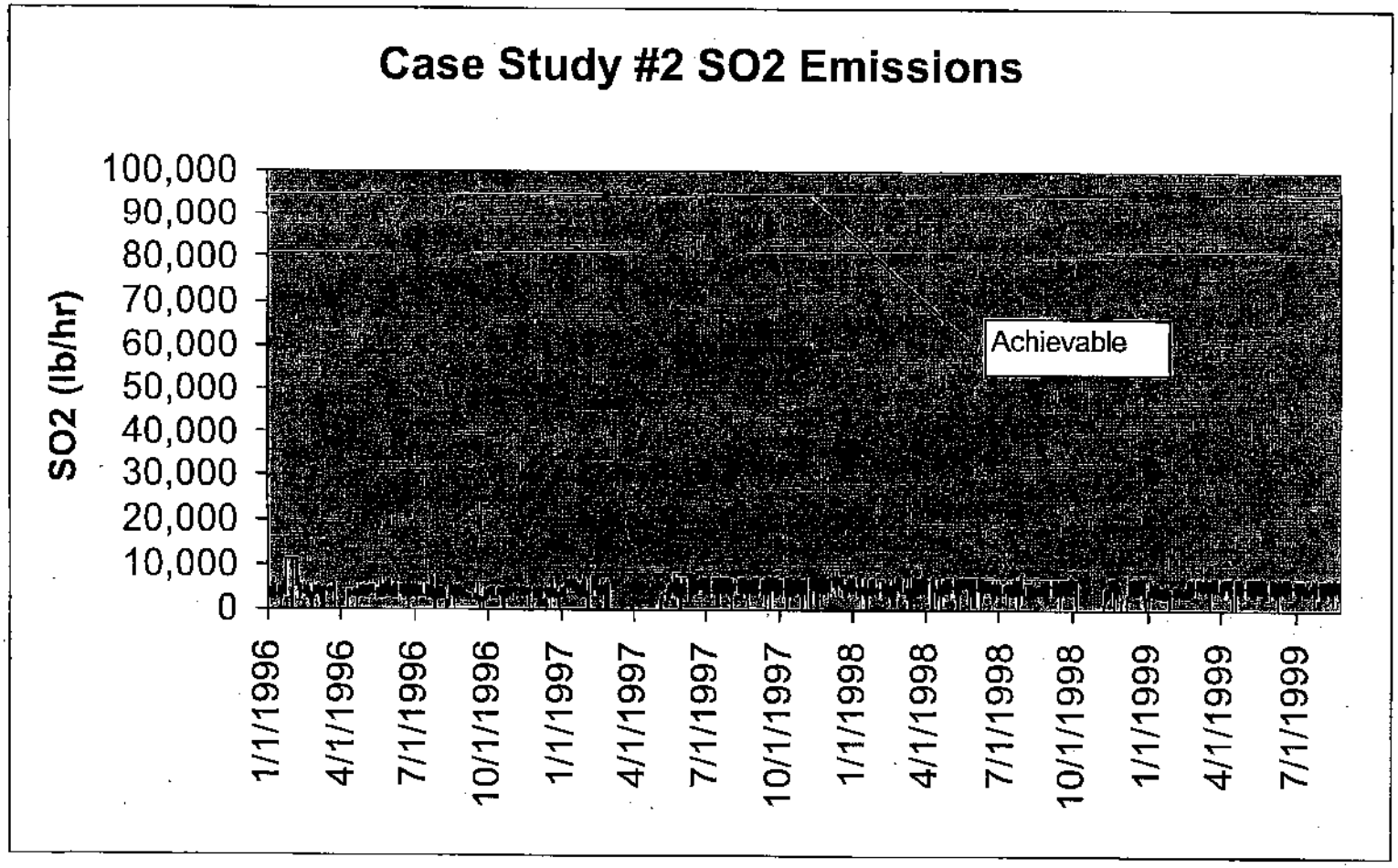
- 638 MW Unit.
- 1998 project -- redesign and replacement of reheater resulting in 10% increase in capacity of the unit.
- SO_2 and NO_X increased by 50 and 978 tons/year, respectively.

Was there an increase capacity?



?Average Heat Input = Average hourly heat input data available from EPA Clean Air Markets Division (post 1994).

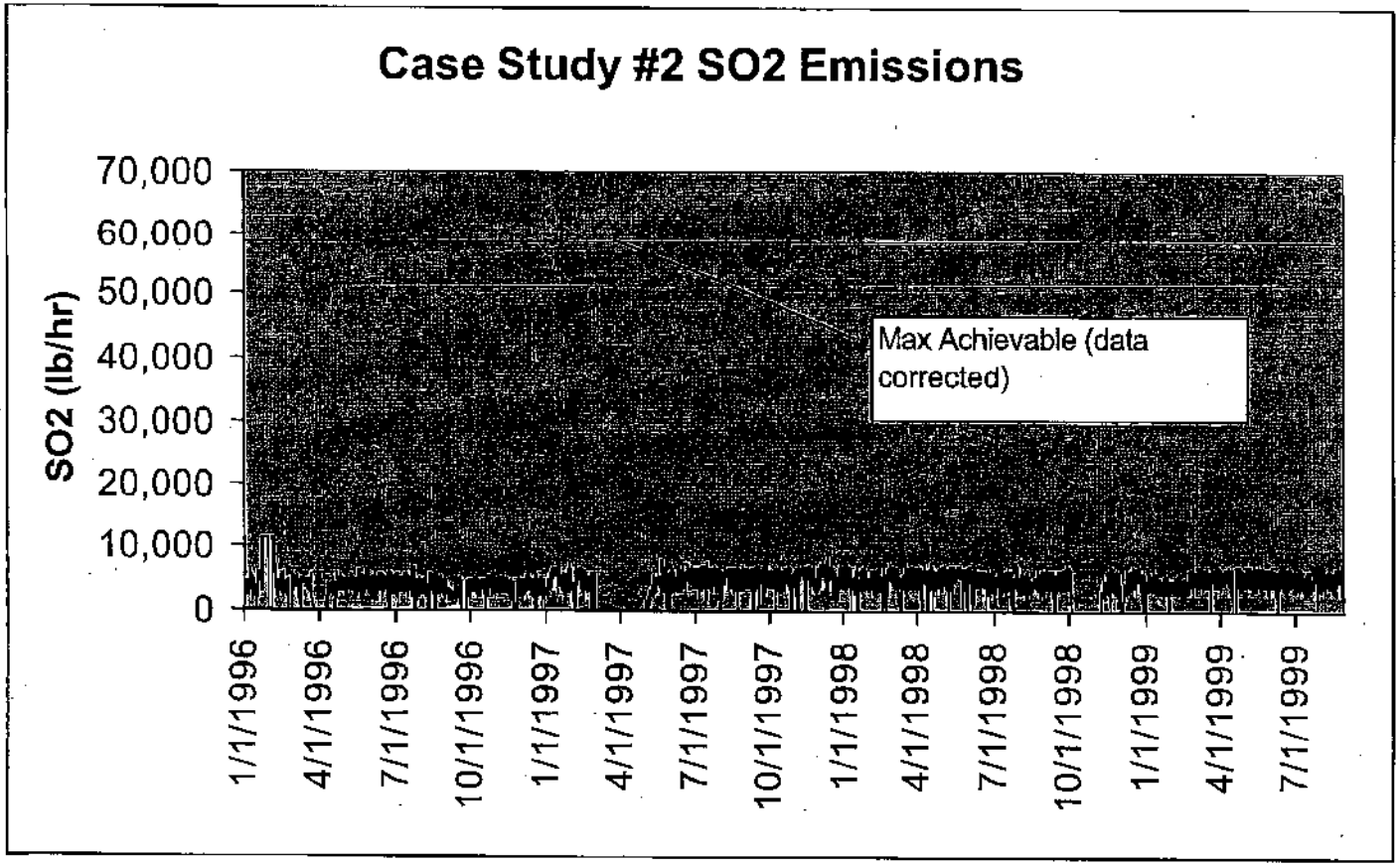
Maximum Achievable – SO_2



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

Maximum Achievable (Corrected) – SO_2

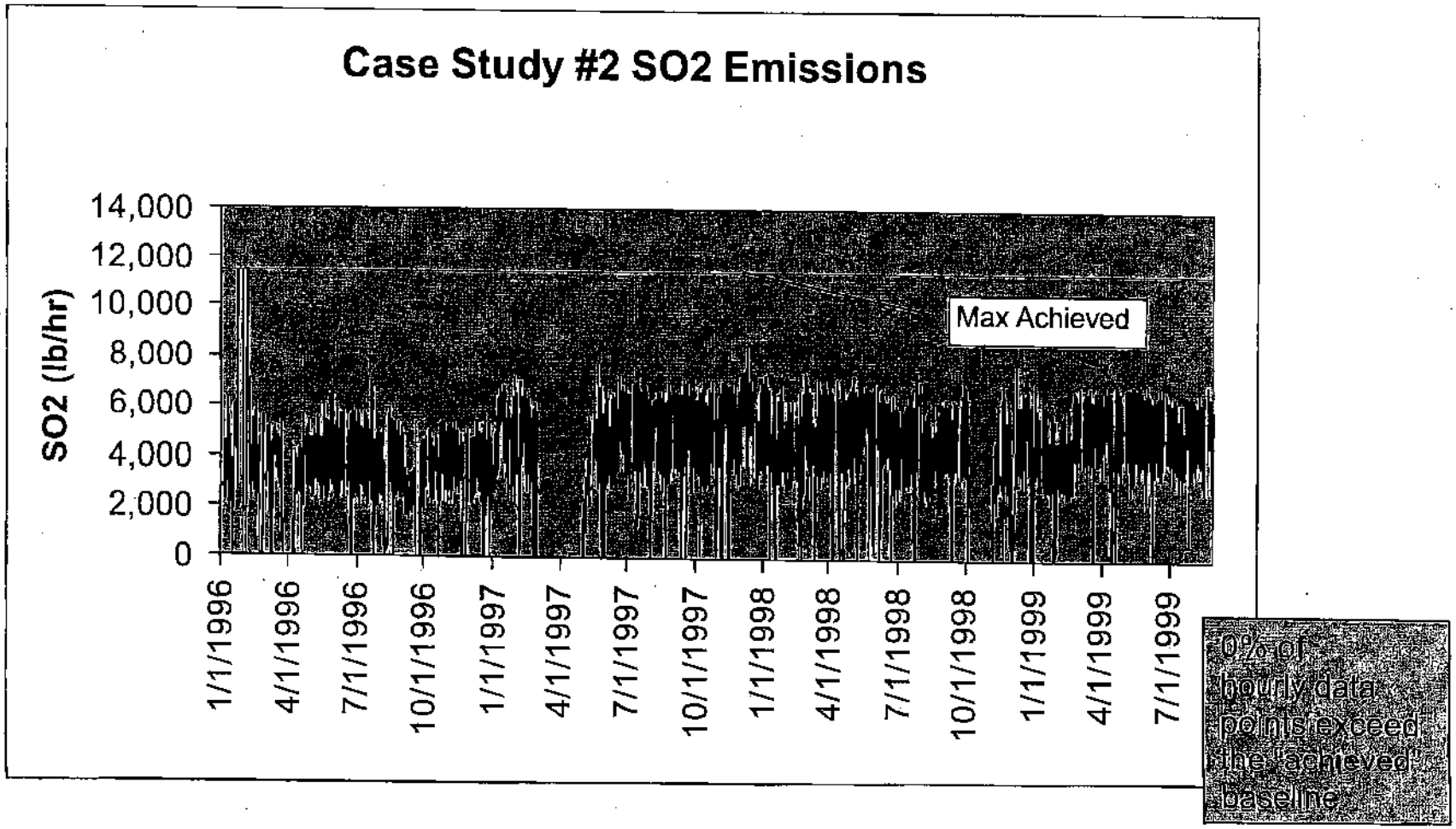


Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

Achievable baseline is corrected to eliminate 0.1% of outlying data points in the heat rate. Note: Proposed rule does not allow for data correction.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

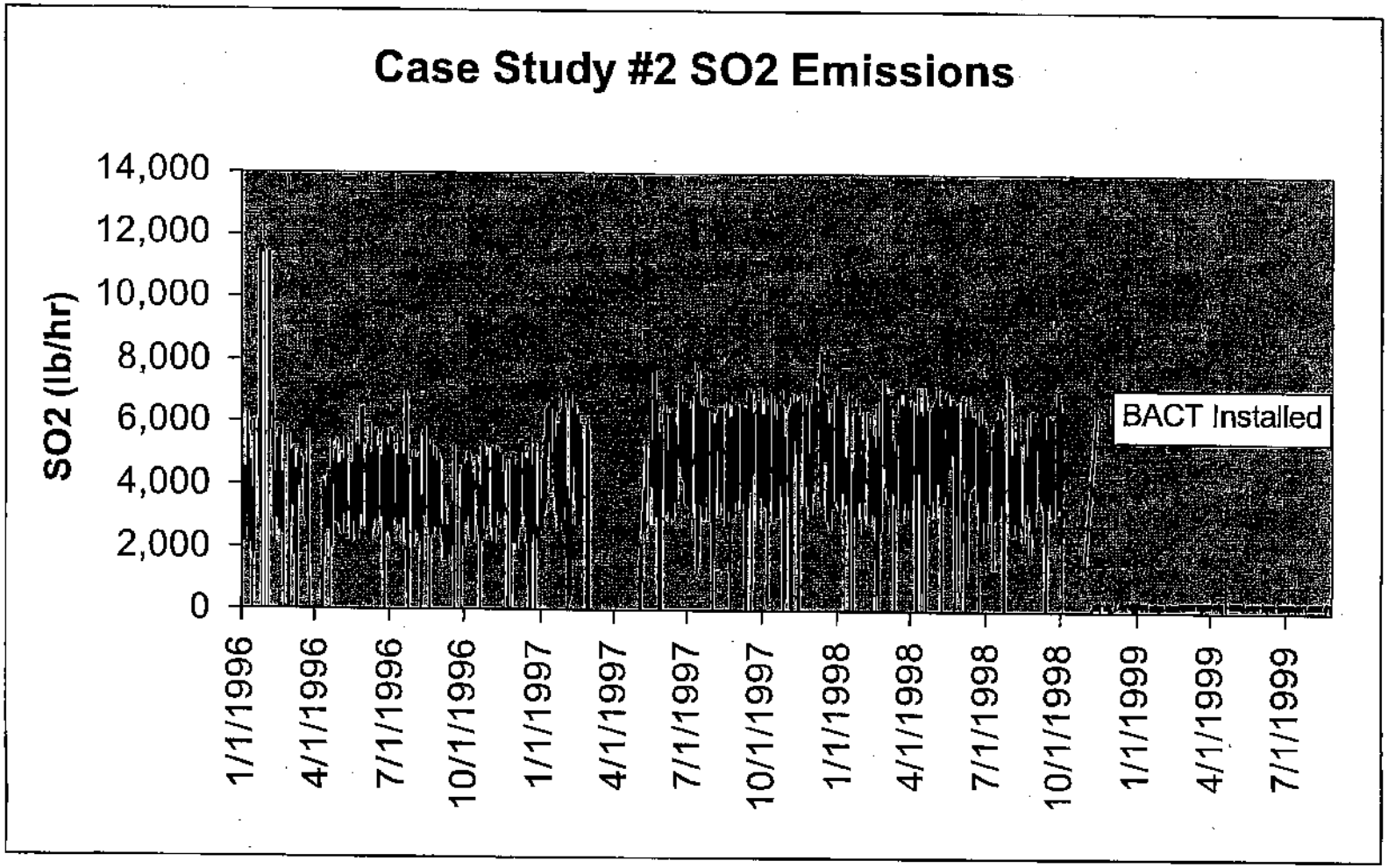
Maximum Achieved – SO_2



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

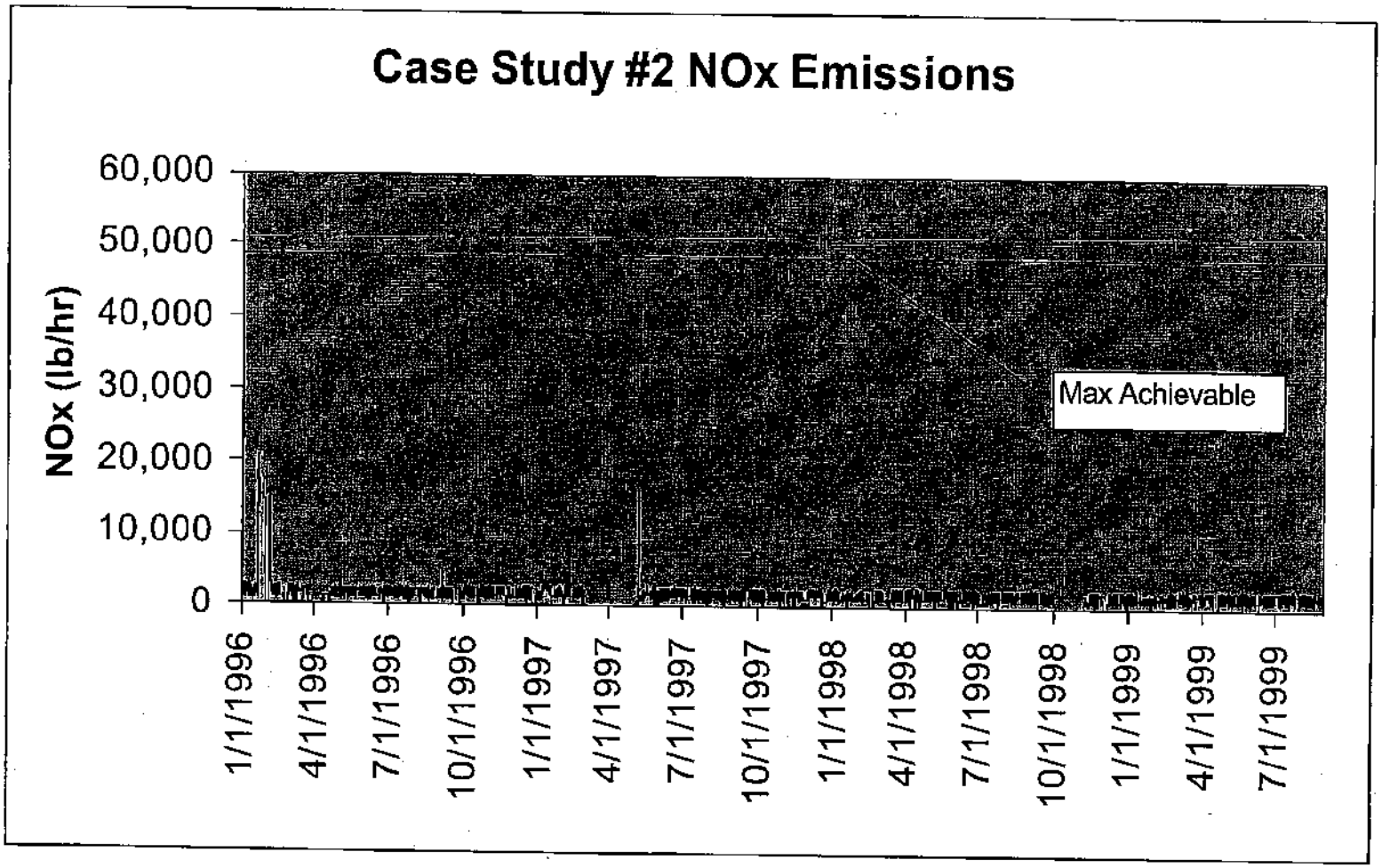
All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if SO_2 controls were installed?



SO_2 BACT assumed 95% emission reductions

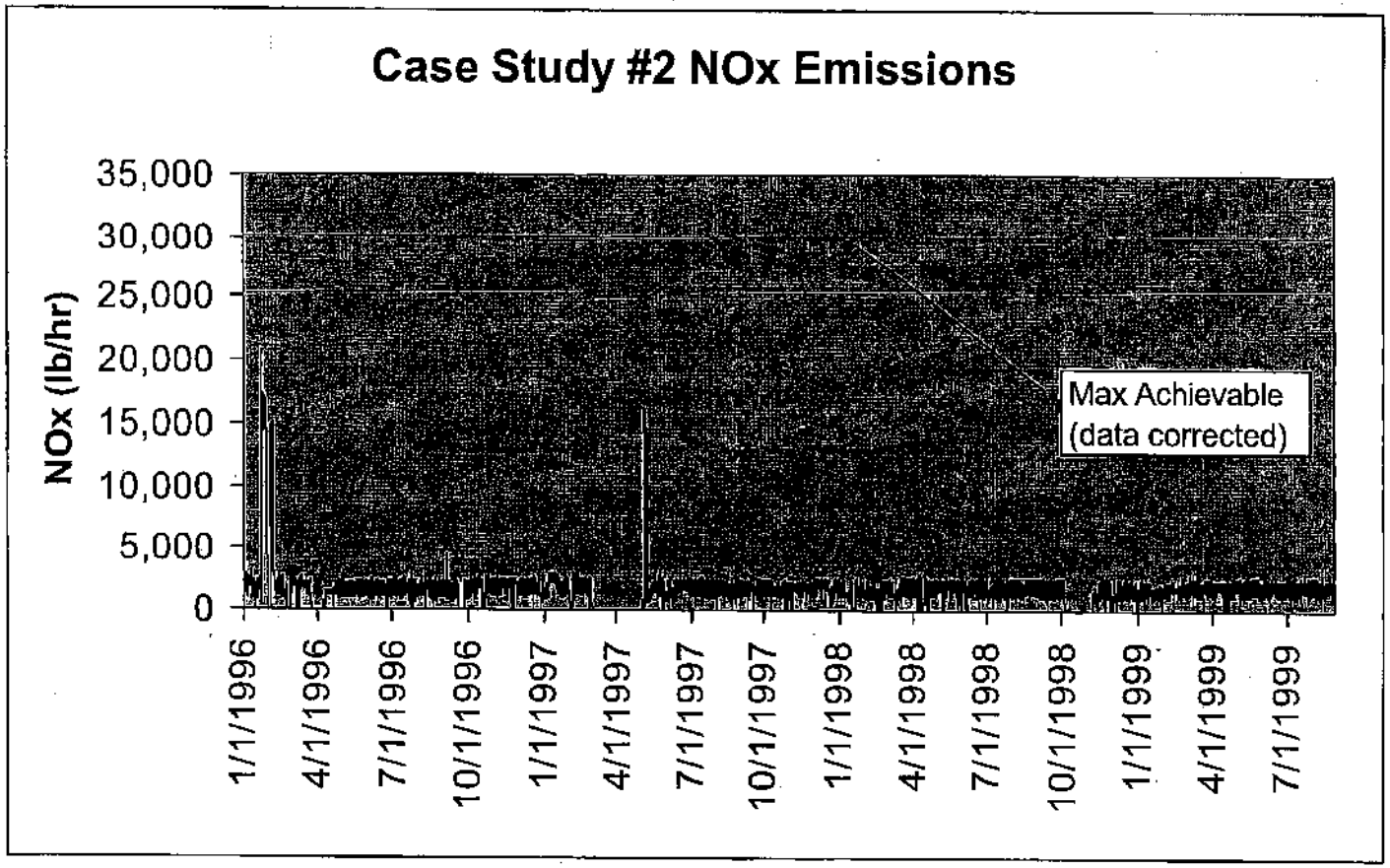
Maximum Achievable - NO_X



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

Maximum Achievable (Corrected) – NO_X

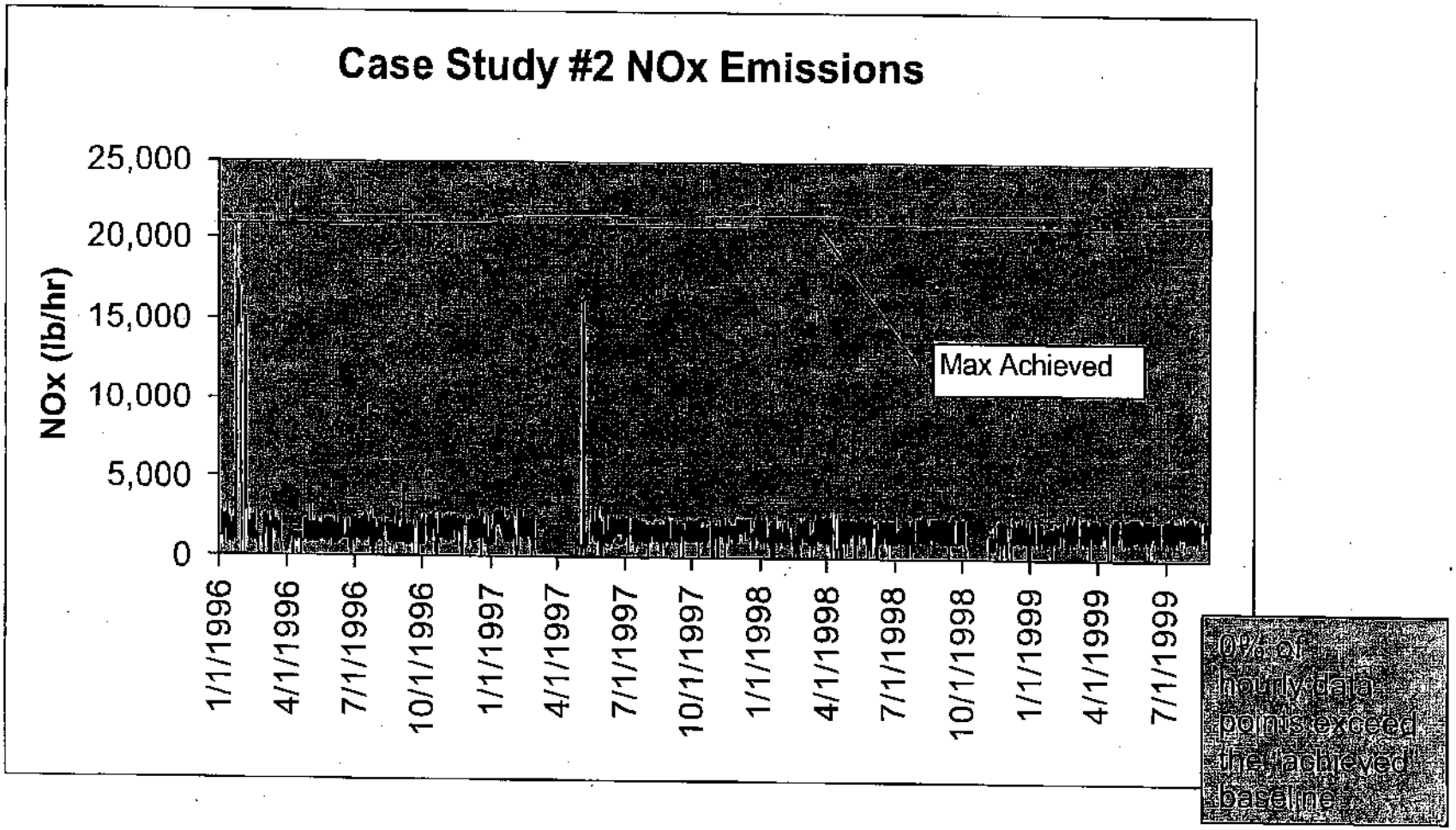


Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

Achievable baseline is corrected to eliminate 0.1% of outlying data points in the heat rate. Note: Proposed rule does not allow for data correction.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

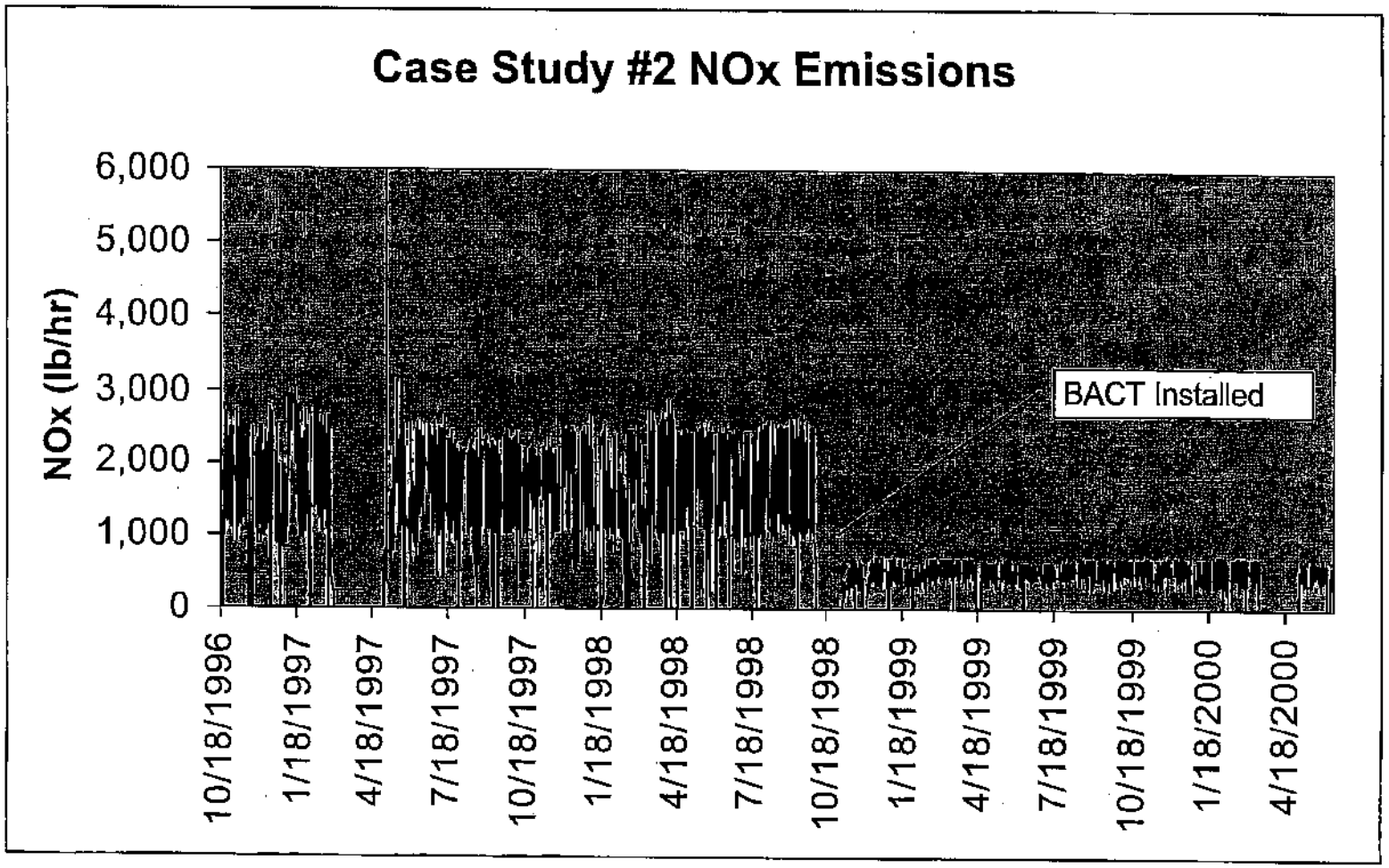
Maximum Achieved - NO_X



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if NO_X controls were installed?

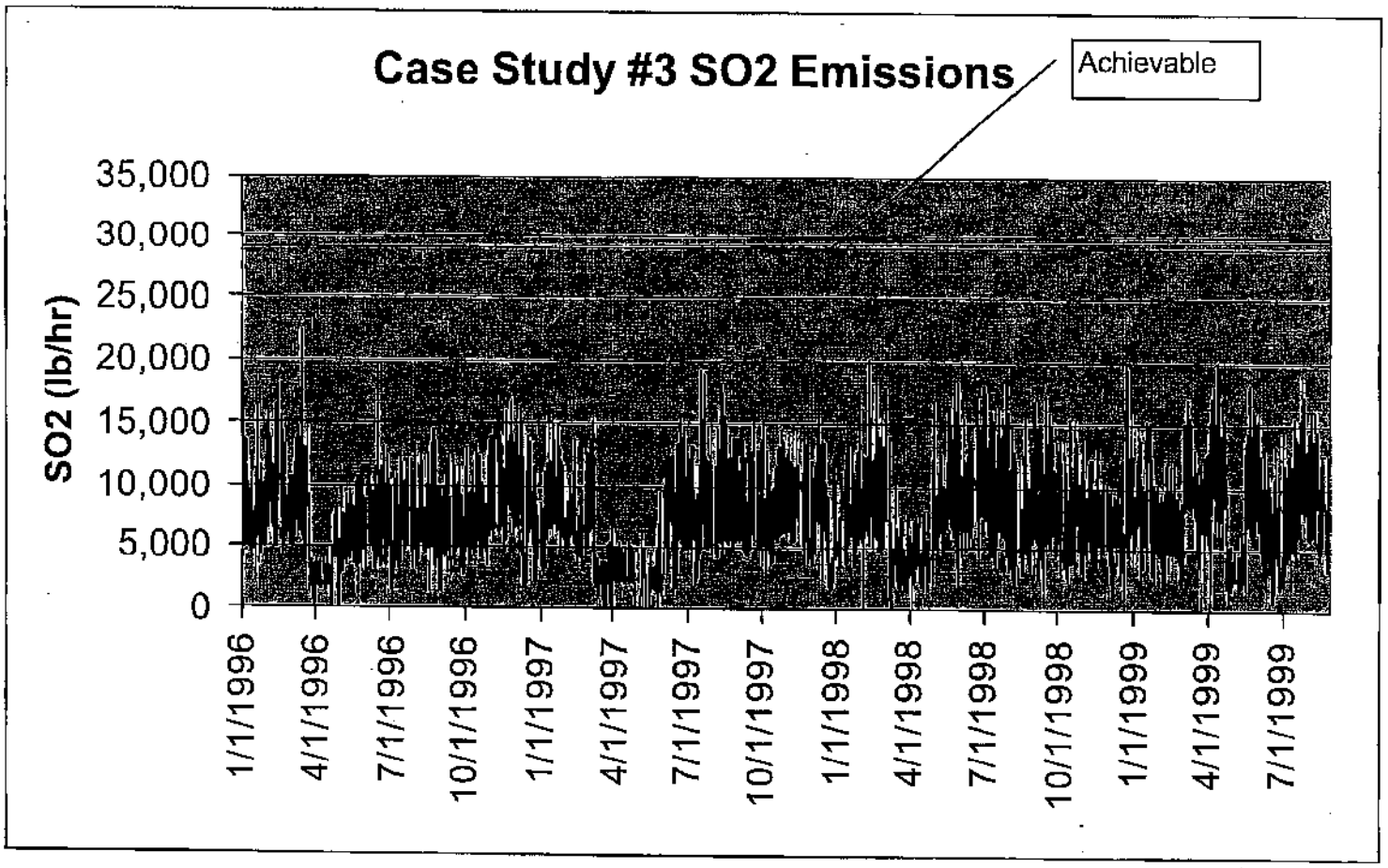


NO_X BACT assumed 0.100 lb/mmbtu

Case Study #3

- 446 MW Unit.
- 1997 -- new, higher capacity turbines; new design reheater with 8% greater surface area; rear arch waterwall replacement; and, pulverizer upgrades.
- Capacity increase of 46 MW (Unit 3 previously rated at 400 MW).
- SO_2 and NO_X increased by 939 and 1,405 tons/year, respectively.

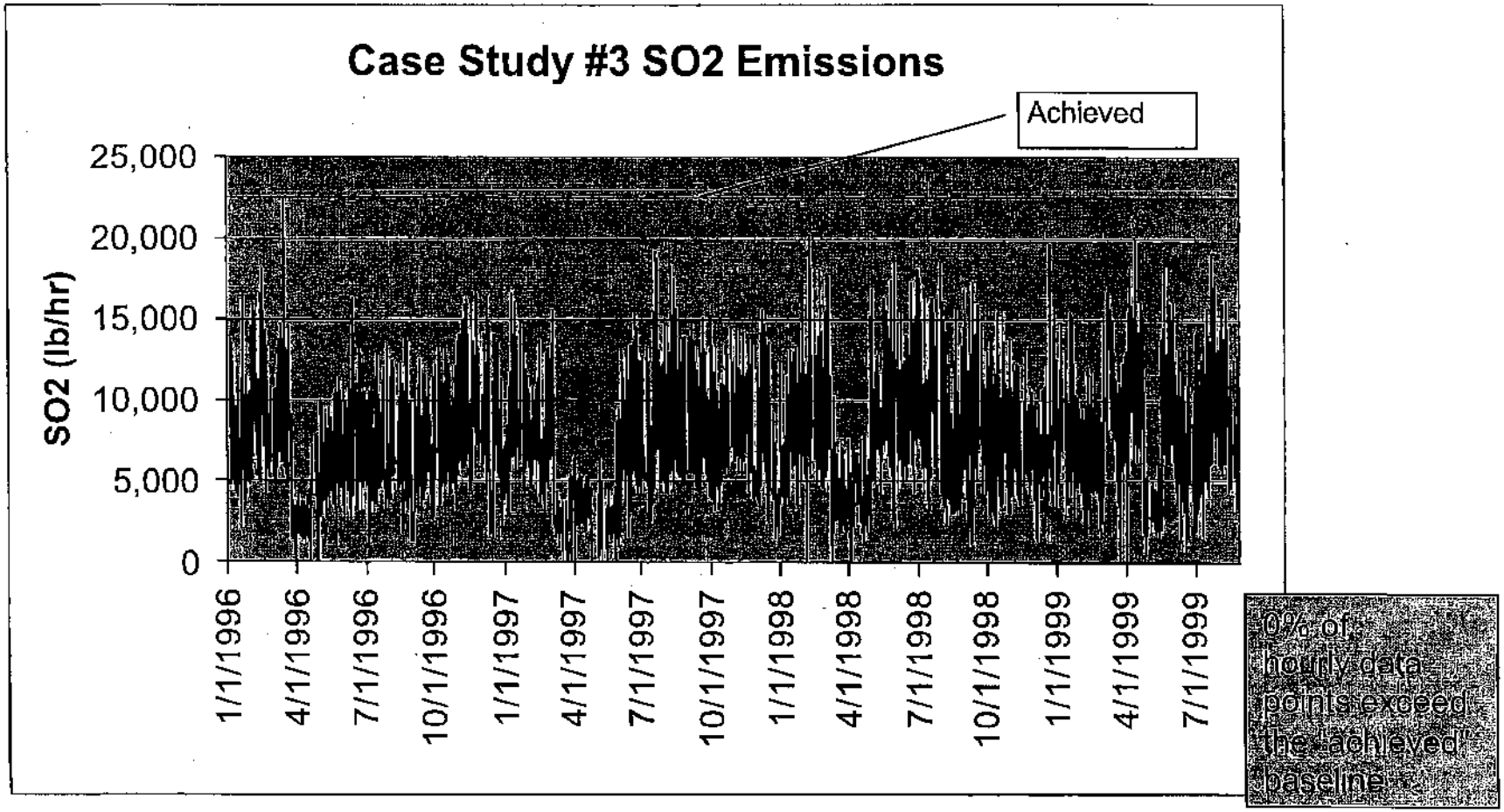
Maximum Achievable Test - SO_2



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

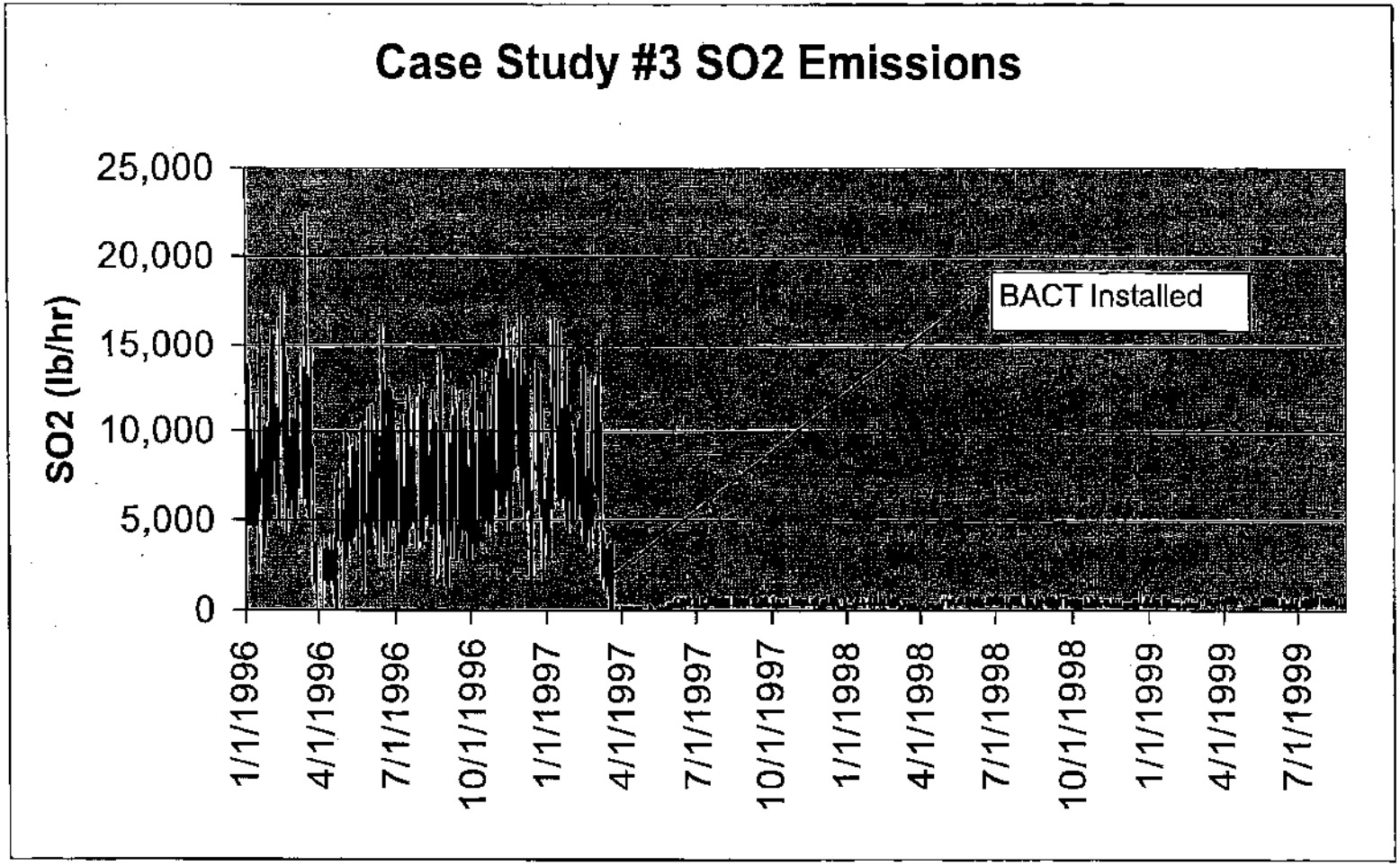
Maximum Achieved Test - SO_2



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

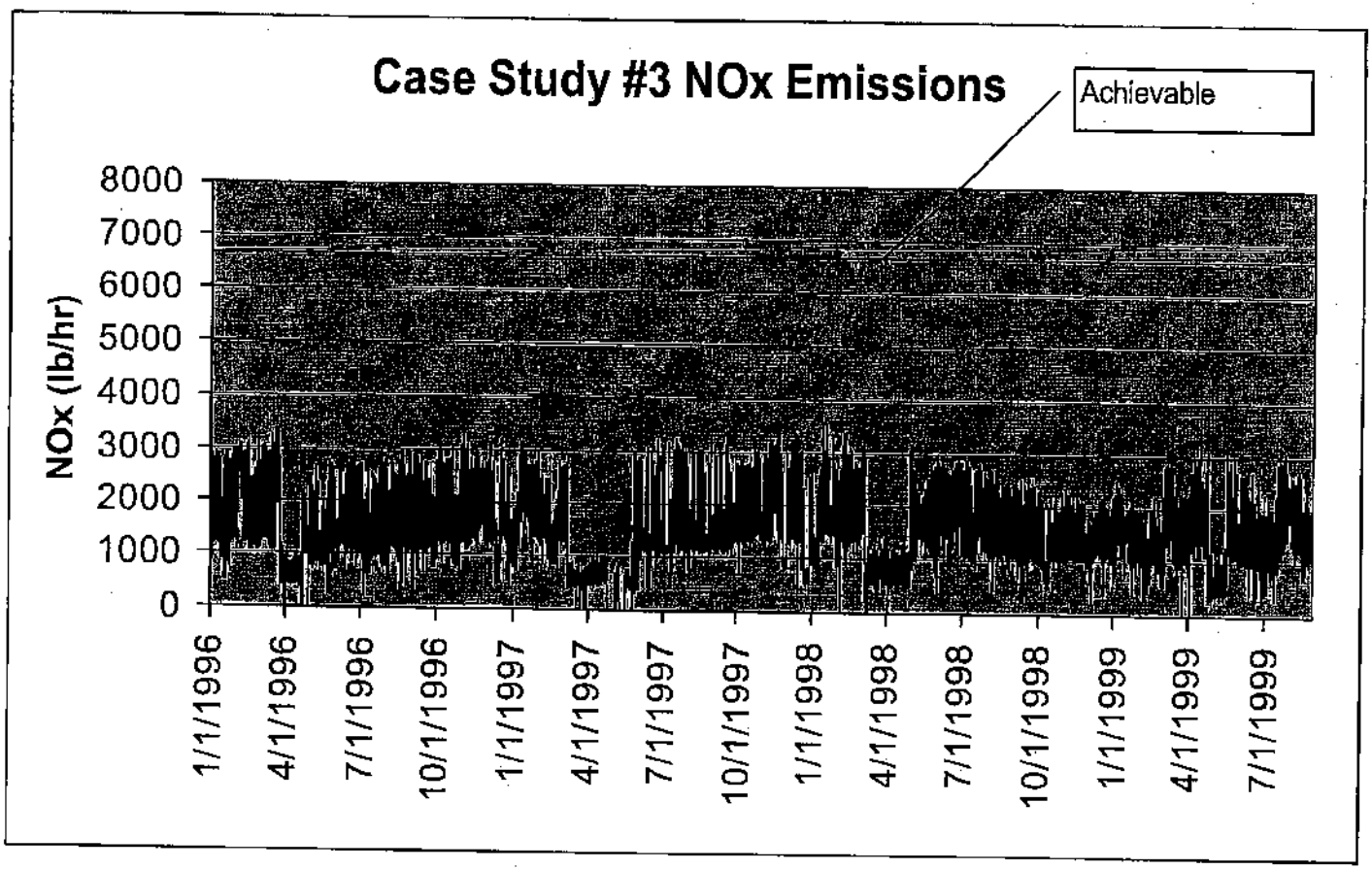
All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if SO_2 controls were installed?



SO_2 BACT assumed 95% emission reductions

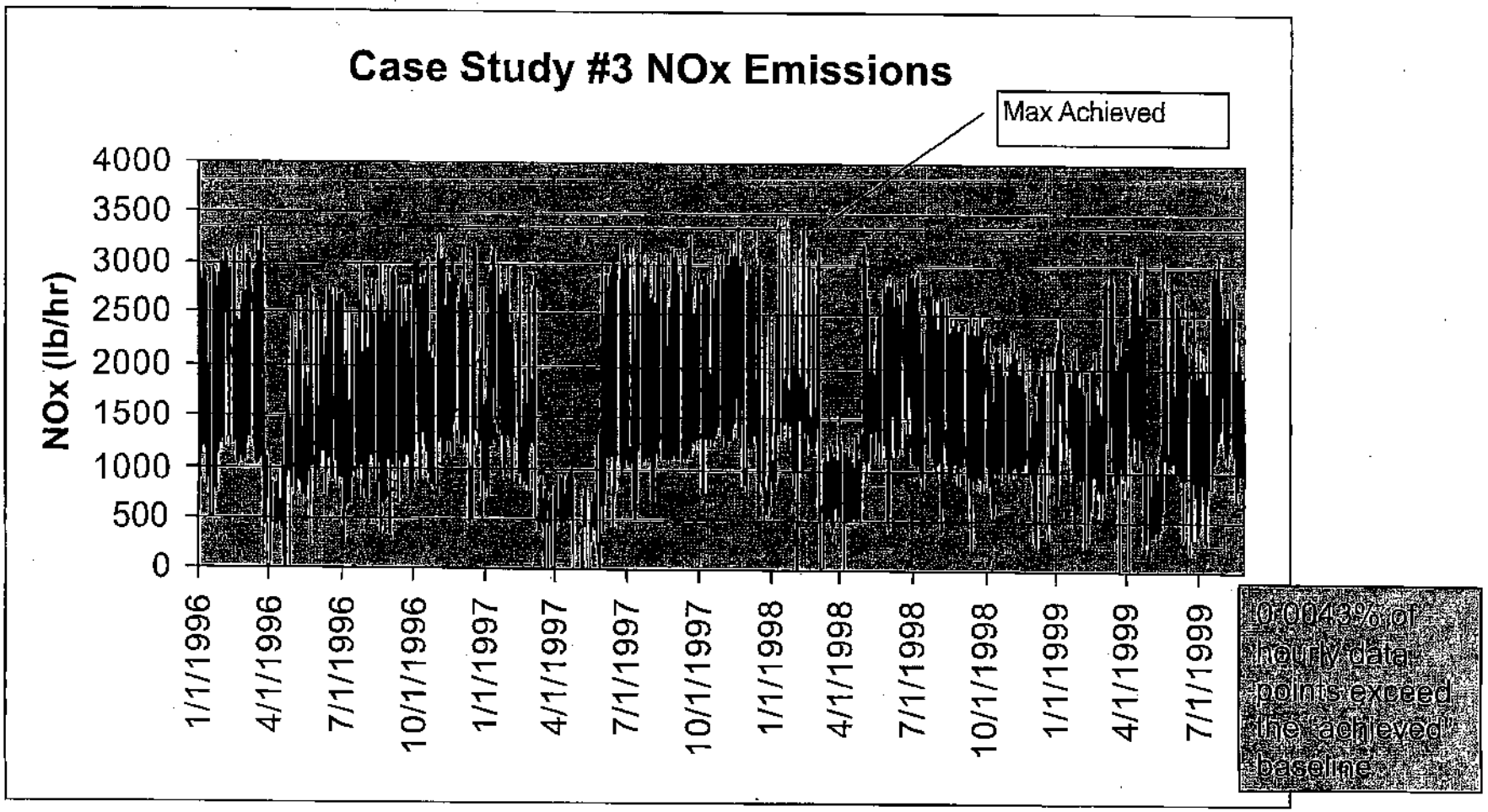
Maximum Achievable Test - NO_x



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

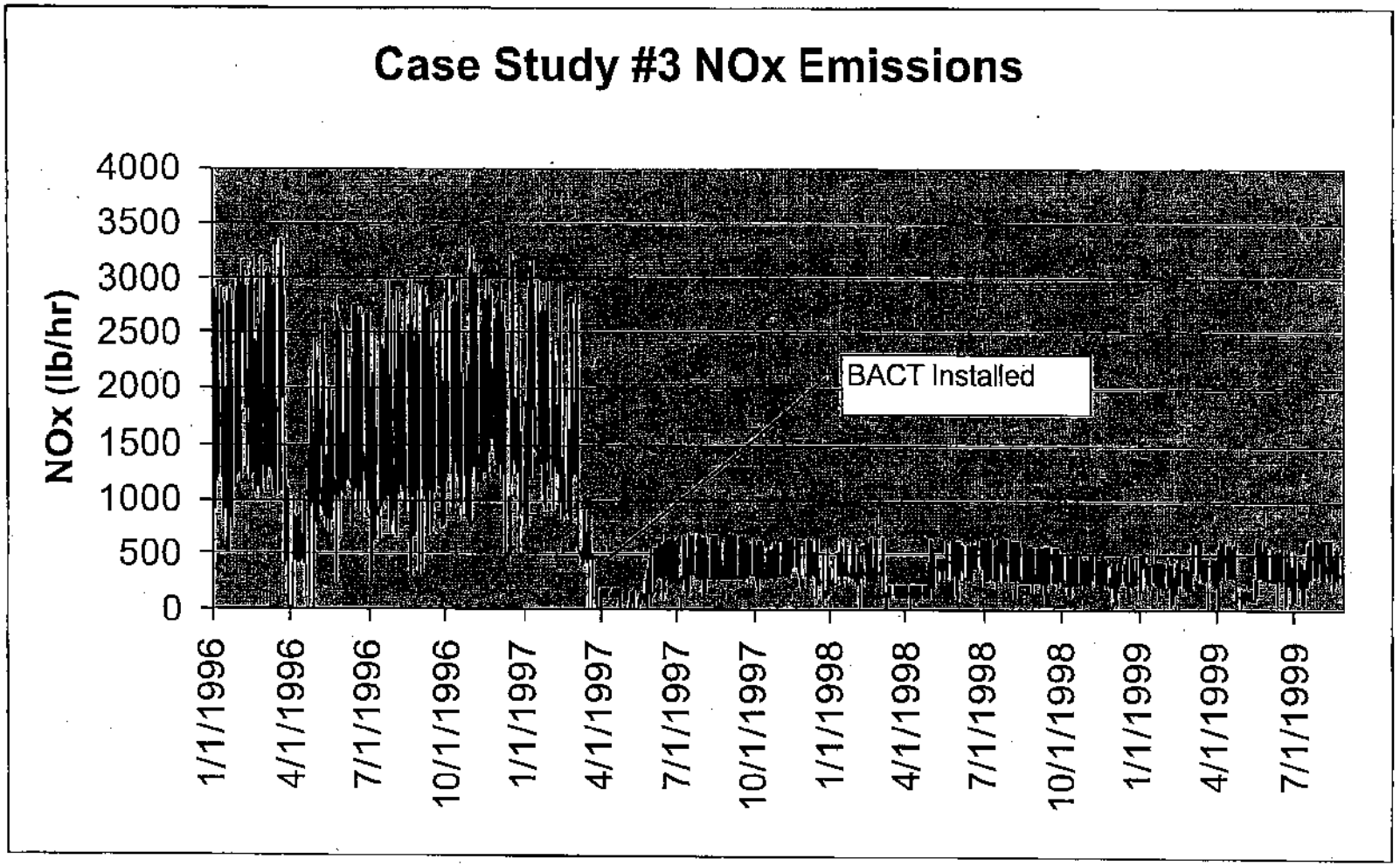
Maximum Achieved Test - NO_x



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if NO_X controls were installed?

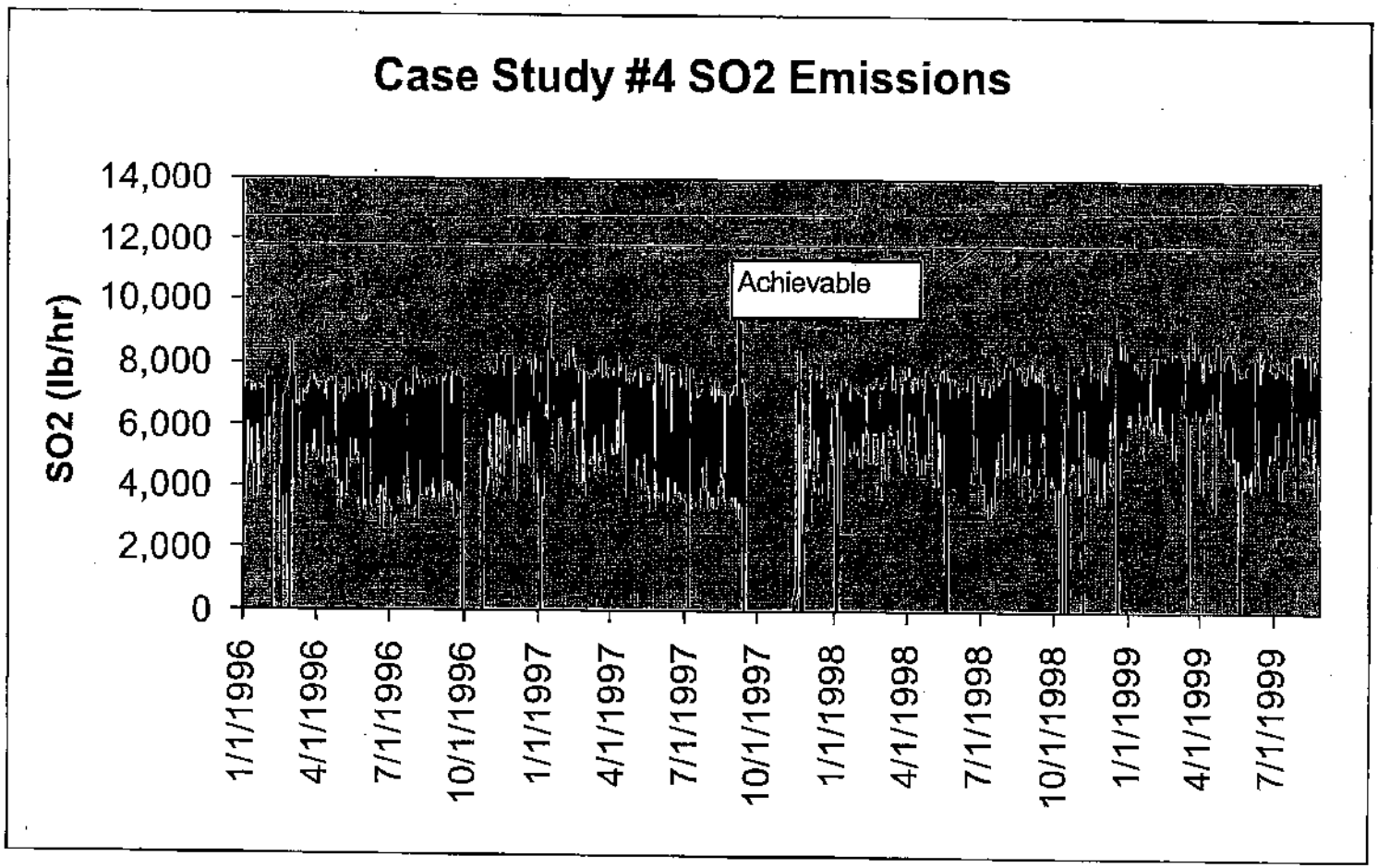


NO_X BACT assumed 0.100 lb/mmbtu

Case Study #4

- 508 MW Unit.
- 1997 project -- Change in method of operation - EKPC installed a newly designed turbine. Increase in capacity of 77 MW (the rated generation of the unit went from 508 to 585 W).
- SO_2 and NO_X increased by 1,700 and 507 tons/year, respectively.

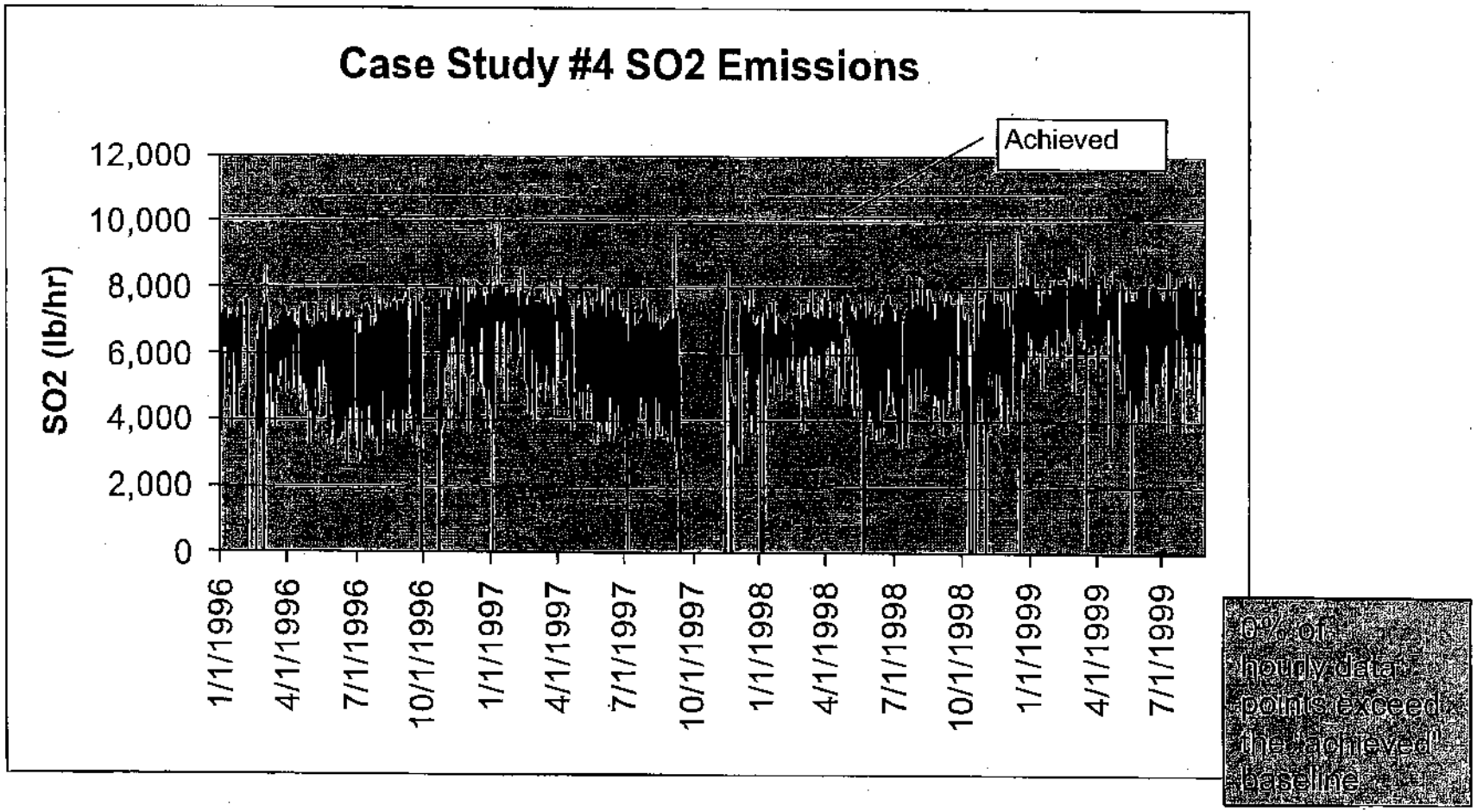
Maximum Achievable – SO_2



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

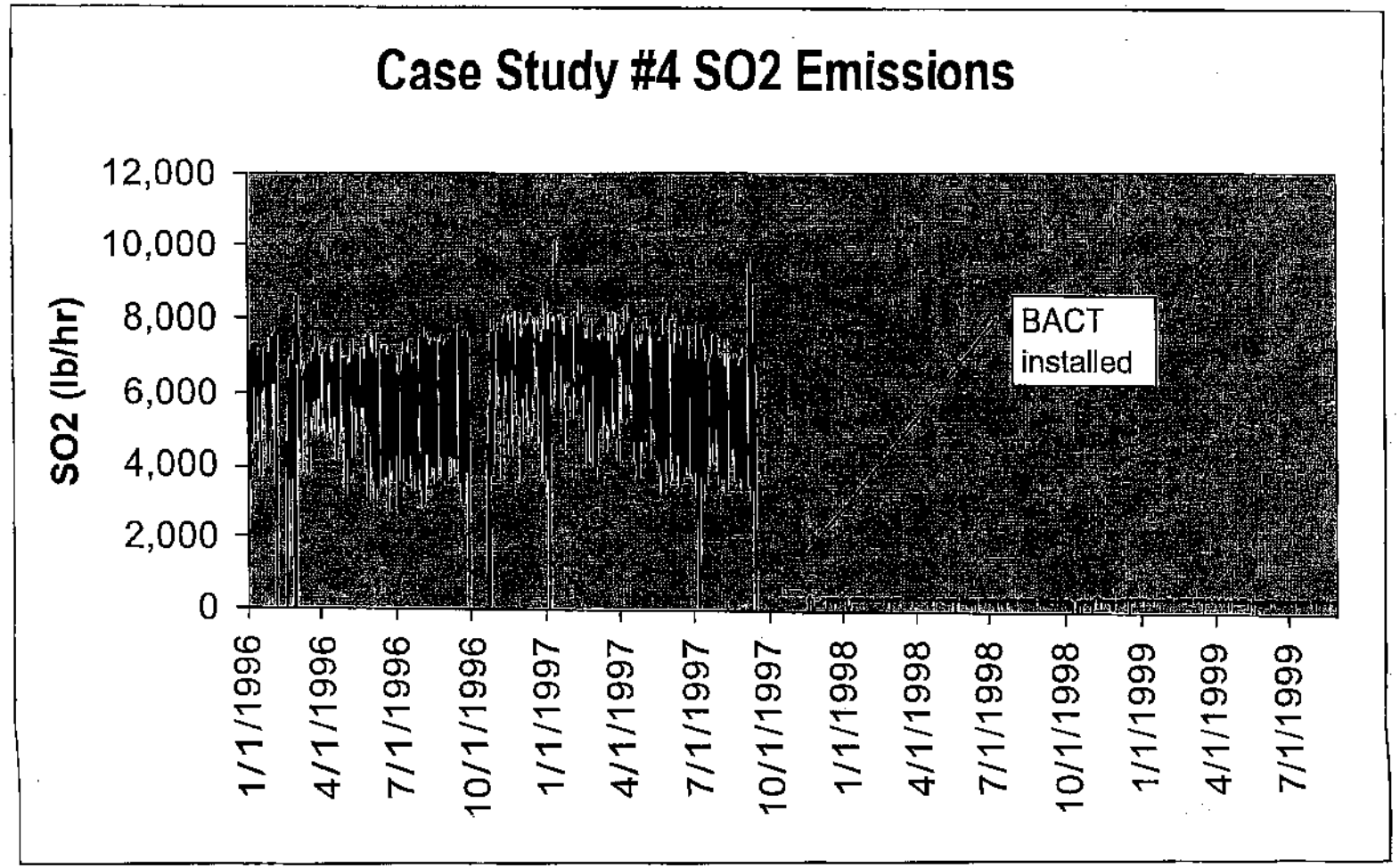
Maximum Achieved – SO_2



Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

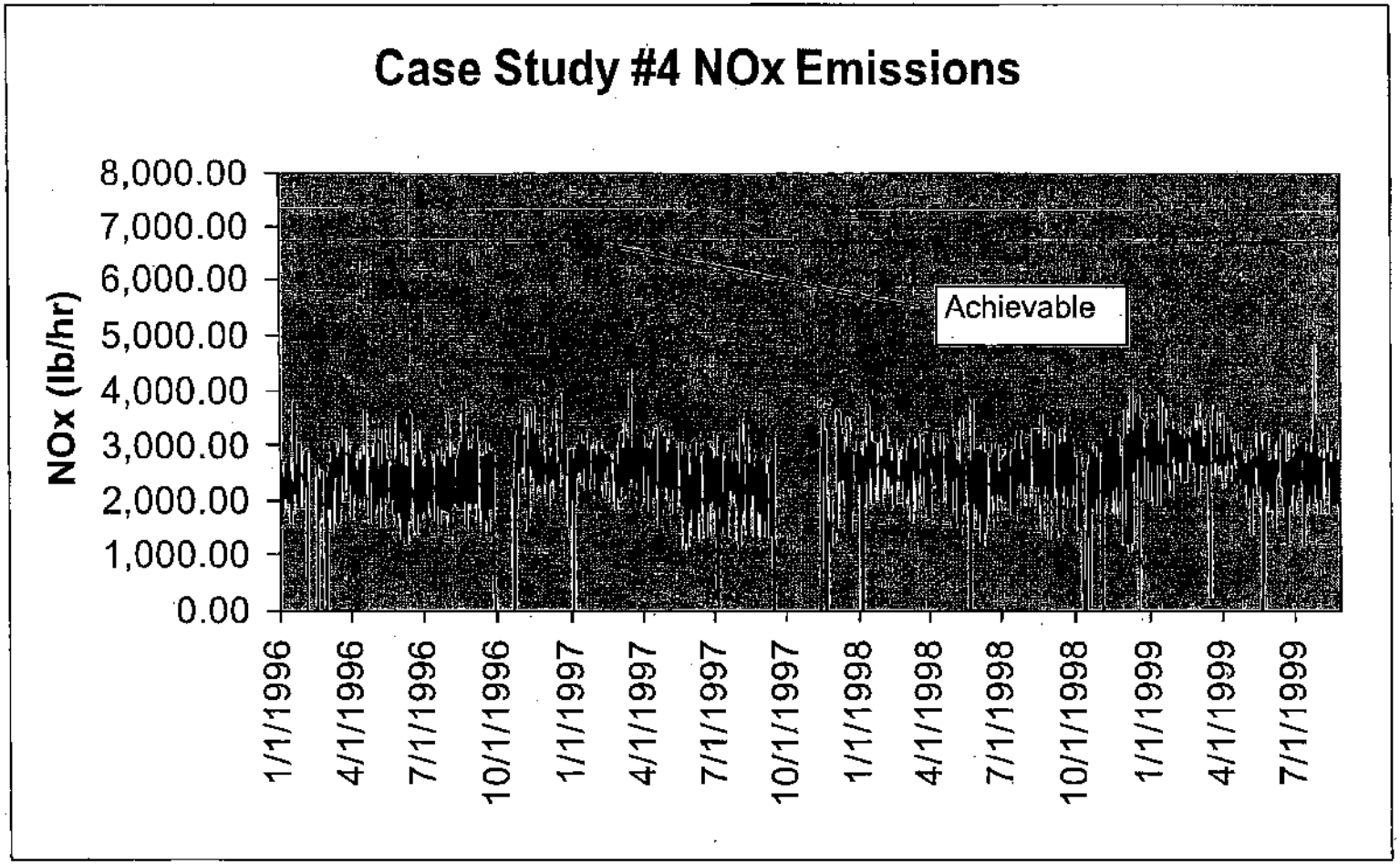
All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if SO_2 controls were installed?



SO_2 BACT assumed 95% emission reductions

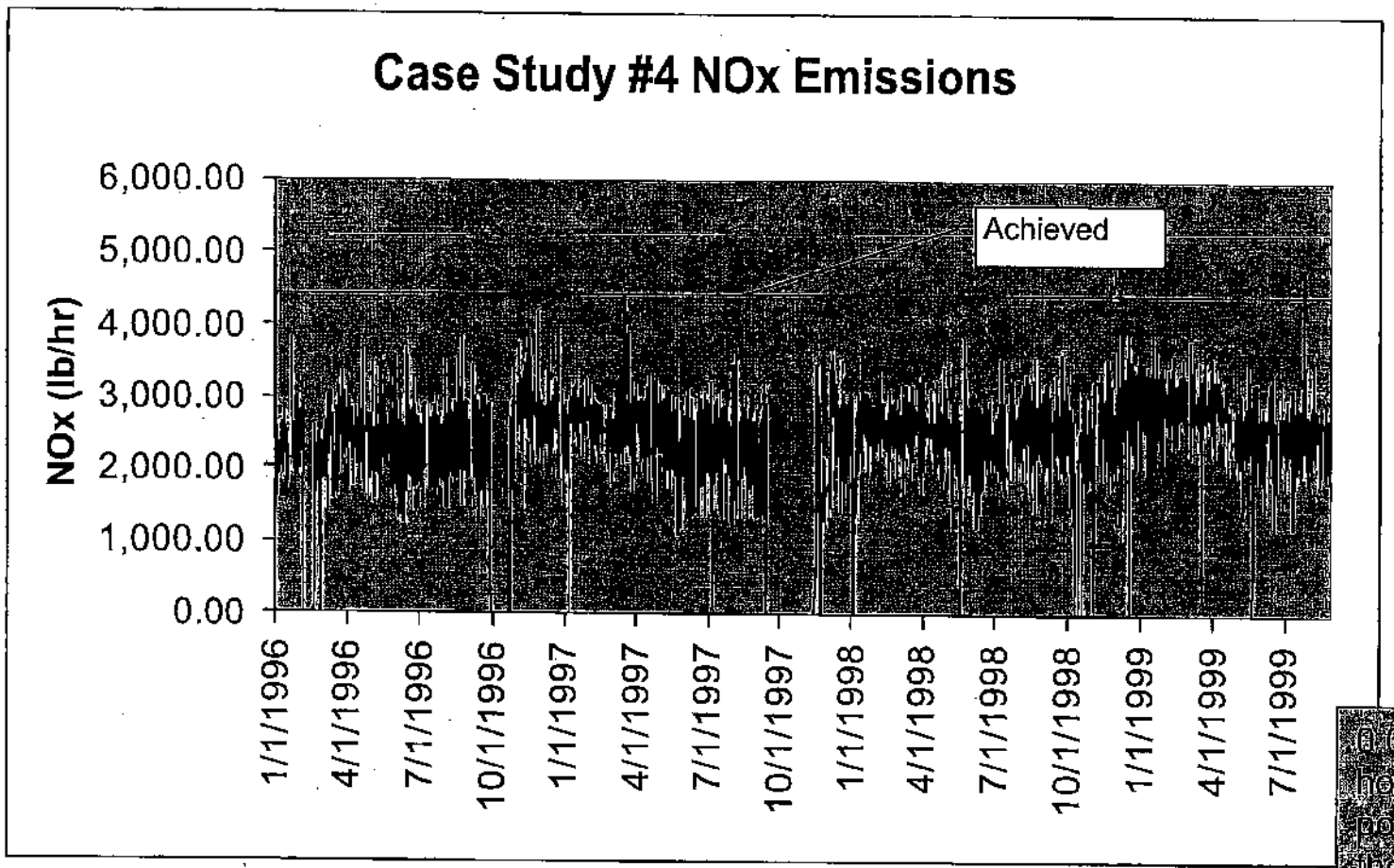
Maximum Achievable - NO_x



Achievable baseline (5 yrs (where available) preceding the change) = maximum emission rate in any hour x maximum heat rate in any hour.

All data (post-1994) was obtained from EPA's Clean Air Markets Division.

Maximum Achieved - NO_x

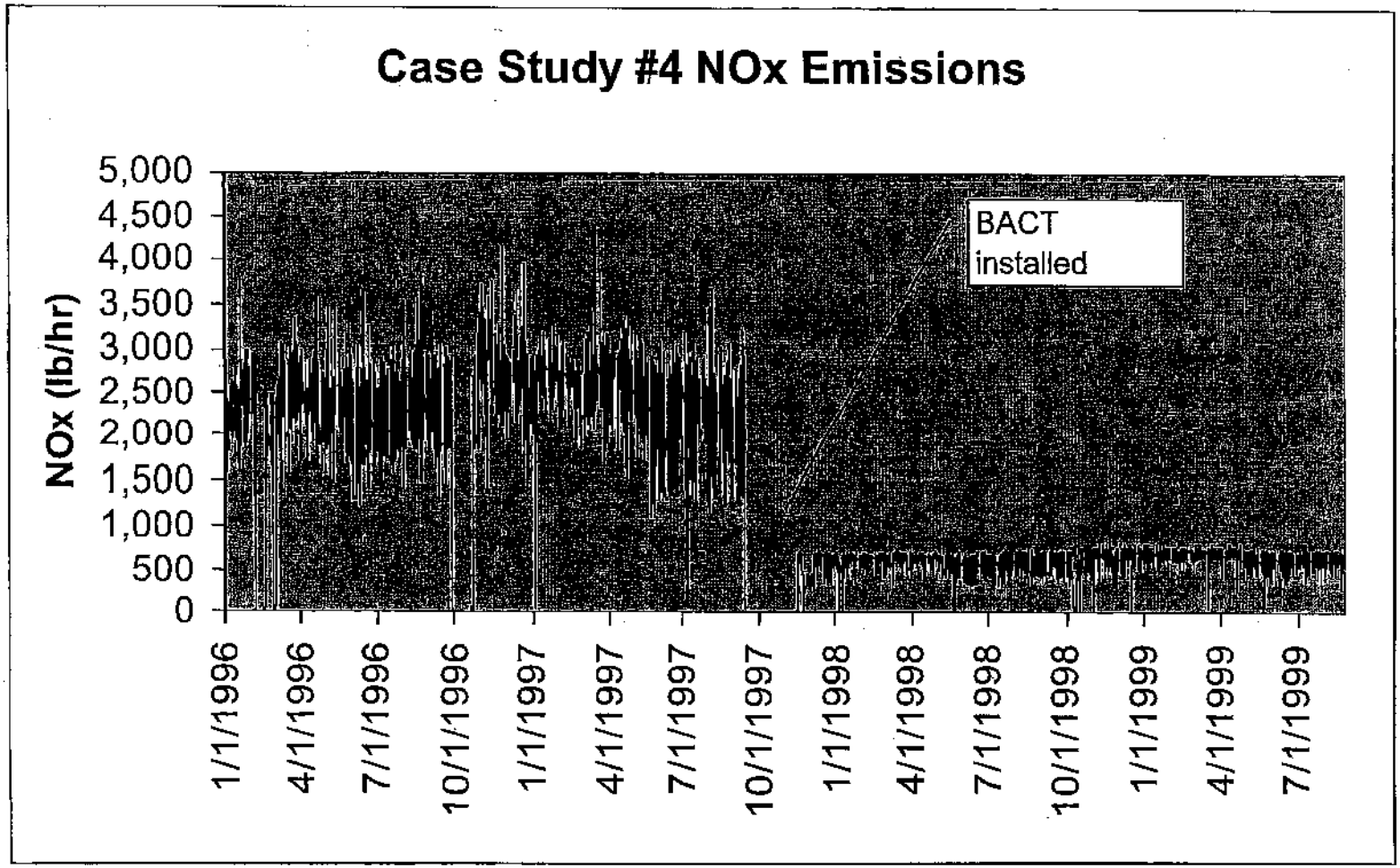


0.005% of hourly data points exceed the "achieved" baseline

Achieved baseline (5 yrs (where available) preceding the change) = maximum hourly emission rate (lbs/hr).

All data (post-1994) is from EPA Clean Air Markets Division as reported.

What if NO_X controls were installed?



NO_X BACT assumed 0.100 lb/mmbtu

Calculations

- All information calculated using acid rain data (1995-2004).
- "Achievable" baseline calculated using maximum heat rate (mmbtu/hr) multiplied by maximum emission rate (lb/mmbtu) in the 5 years prior (where available) to the change.
- "Achieved" baseline calculated by using the maximum hourly emission rate (lb/hr) in the 5 years prior to the change.
- "Achievable baseline with data corrections" was calculated by eliminating 0.1% of outlying data points in the maximum heat rate and then multiplying the corrected maximum heat rate (mmbtu/hr) by the maximum emission rate (lb/mmbtu).
- Heat rate before and after the change was calculated using the average heat rate within the period before the change and after the change.