OZONE POLLUTION CONTROL

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ABSTRAK

Sebagaimana halnya di Indonesia, pencemaran udara telah menjadi masalah serius di Amerika. Untuk mengantisipasi masalah tersebut oleh Pemerintah Federal dilakukan perubahan peraturan mengenai ozone. Peraturan tersebut menentukan tingkat bahaya dari setiap wilayah dengan membaginya menjadi 5 kriteria, yaitu marjin, moderat, serius, severe, dan ekstrim. Setiap daerah yang masuk ke dalam kategori tersebut harus mengurangi pencemaran ozone sesuai dengan batas waktu yang telah ditentukan. Penulis memfokuskan analisis pada daerah moderat dengan mengambil sebuah negara bagian (Shaw) yang terletak di wilayah utara yang batas waktu pemenuhannya 15 November 1996. Meskipun terlambat memenuhi batas waktu tersebut, Shaw masih memiliki beberapa pilihan untuk mengurangi tingkat pencemaran ozone. Dari hasil penelitian kepustakaan yang dilakukan penulis di Harvard Law School, beberapa pilihan yang dapat dilakukan oleh negara bagian tersebut adalah sebagai berikut: (i) menetapkan jadual pengurangan VOCs dan NOx setiap tahun; (ii) pemanfaatan teknologi dengan pengawasan; (iii) penggunaan bahan bakar pengganti; (iv) program pengawasan dan pemeliharaan kendaraan bermotor; atau (v) penyerahan memorandum untuk penjadwalan kembali. Apabila pemenuhan atas keterlambatan tersebut tidak dapat dilakukan, negara bagian tersebut akan menghadapi 3 konsekuensi yang merupakan sanksi administratif: (i) pemotongan bantuan dana federal; (ii) peningkatan klasifikasi, misalnya menjadi serius, dengan segala akibatnya; dan (iii) menerima apa pun kebijakan dari pusat (federal).

I. INTRODUCTION

The 1990 Clean Air Act Amendments contained numerous new provisions intended by Congress specifically to rectify widespread ozone non-attainment [See Henry A. Waxman, An Overview of the Clean Air Acts Amendments of 1990, 21 ENVTL. L. 1721, 1758-1761 (1991)]. Unlike other

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pollutants, ozone does not emanate directly from automobiles or other sources. Ozone results instead from the combination of oxygen nitrogen oxides (NOx) and various hydrocarbon pollutants called volatile organic compounds (VOCs) in the atmosphere. Combination of these chemicals in conjunction with the energy provided produces ozone through a series of photochemical reactions [See Office of Technology Assessment, U.S. Congress, *Catching Our Breath: Next Steps For Reducing Ozone,* at 68 *(1989)*]. Scientist have long recognized that exposure to elevate levels of ozone is dangerous for people with impaired respiratory systems and for children, and unhealthy for the population as a whole [See National Research Council, *Rethinking the Ozone Problem in Urban and Regional Air Pollution*, at 120-134 (1991)].

To reduce ozone non-attainment, the CAA requires the classification of the ozone non-attainment areas as marginal, moderate, serious, severe, or extreme depending on the severity of the pollution problem. When an area has been designated non-attainment, the area must comply with the full panoply of requirements and restrictions that attend the status. For example, the CAA obligates a moderate non-attainment area to implement the control measures enumerated in Section 182 (b) even if the area does not encompass the actual sources of the pollutant in its ambient air [42 U.S.C. 7511a (b)]. In addition, the CAA also imposes a timetable for an ozone non-attainment area during which regulatory actions must be taken in an attempt to address the air quality issues. These requirements include mandated VOC reductions, technology based emission standards, offsets to new emissions in a non-attainment area, inspection and maintenance programs for mobile sources [42 U.S.C 7511 (a)]. Based on ozone concentrations, Shaw[1] has been classified as a moderate non-attainment area. Moderate classification means that concentration of ozone is between .138 and 159 ppm [42 U.S.C. 7511 (a)(1)]. As a moderate area, Shaw must reach attainment by November 15, 1996 [42 U.S.C. 7511 (a)(1)].

EPA recently declared that the region did not meet the statutory deadline for attainment and called for a State Implementation Plan (SIP) revision. The problem arising from EPAs declaration is that how much of an implementation must be done in response to a revised SIP, and by what deadline? The 1990 amendments leave these issues to the Administrators discretion [42 U.S.C. 7410 (k)(5)].

Since the CAA does not expressly require to what extent EPA has to approve or disapprove SIP revisions and date of the EPA final decision is

[1] Shaw is a fictive name of the State located in Northern Area of the United States.

uncertain, the State submitting the revision must adapt its own plan to the most feasibly alternative. The courts have recognized that compliance requirements contained in the CAA may require the development of pollution control devices that may, at the time of the preparation of the SIP (revision), appear economically or technologically infeasible. Therefore, EPA cannot reject a (revised) SIP because of these factors [See Union Elec. Co. v. EPA, 427 U.S. 246, at 258 (1976)].

The purpose of this article is to highlight the effect of the 1990 Clean Air Act on the Northern Air Quality Control for Shaw that does not meet the Federal Air Quality Standards as a moderate non-attainment area for ozone and to suggest options that enable the State to meet the federal air quality standards. This article also outlines the potential negative consequences to the State if it does not fulfill the statutory requirements.

II. STATEMENT OF ISSUES

A. What options can the State choose to meet the Federal Air Quality Standards?

B. Are there any negative consequences should the State not comply with statutory requirements?

III. ANALYSIS

When an area has been designated as an ozone non-attainment area, the Clean Air Act imposes a timetable during which regulatory actions must be taken in an attempt to address the air quality issues. While the Northern Air Quality Control Region for Shaw has been classified as a moderate non-attainment area for ozone, the State is responsible for adopting rules and regulations to achieve and maintain federal quality standards. The States plan for achieving compliance with these standard is known as the State Implementation Plan (SIP) [42 U.S.C. 7407 (a)].

To maintain air quality, the SIP must anticipate and offset any new increases in criteria pollutants that may occur due to population growth, motor vehicle activity, or industrial activity. Under the CAA, the States have the primary responsibility for ensuring that the air quality in that State does not violate federally established NAAQS standards [42 U.S.C. 7407 (a)].

The CAA requires that the State demonstrate that provisions contained in a proposed or revised SIP will effectively address air quality issues. SIP demonstrations require that air quality modeling be performed as prescribed by EPA, with details of such modeling provided to EPA upon request [42 U.S.C. 7410 (a)(2)(k). Upon application to EPA, the States can use equivalent modeling procedures for the purpose of demonstrating reasonable further

progress in achieving air quality goals in non-attainment areas unless these techniques are proven to be less effective than the methods specified by EPA [42 U.S.C. 7502 (c)(8)].

The EPA Administrator has the authority to approve or disapprove the SIP in whole or in part. In some cases, the EPA Administrator can partially approve an SIP or modification to an SIP [42 U.S.C. 7410 (k)(3)]. EPA is not bound by a States conclusion that an SIP will timely meet federal air quality standards, but EPA cannot arbitrarily reject the States SIP. After EPA approves the plan, the regulations are published in the Federal register [42 U.S.C. 7410 (h)]

Until an SIP is implemented, the actual effect of its rules and regulations on air quality is unknown. To address the uncertainty inherent in rule making, air quality models are used to assess the impact of potential regulations. In most cases, computer dispersion models predict what air quality levels will exist after emission controls have been implemented [42 U.S.C. 7410 (a)(2)(k)].

While the State is primarily responsible for drafting the SIP, local governments and regional agencies or planning organizations should also be consulted regarding the SIP provisions [42 U.S.C. 7504 (a)] Prior to submitting or revising an SIP the State must have a hearing on the merits of the proposed SIP provisions or revisions [42 U.S.C. 7410 (a)(1); 40 C.F.R. 51.102 (1992)].

A. Options

As mentioned above, each State in which all or part of a moderate ozone non attainment area is located must submit SIP revisions including three items: (i) a specific annual reduction schedule for VOCs and NOx; (ii) an extension of RACT requirements to additional existing sources of VOCs; and (iii) gasoline vapor recovery requirements (known as stage II controls)

In addition, any moderate ozone area must submit an SIP revision providing for a motor vehicle inspection and maintenance program (I/M program), and may propose the submittal completeness memorandum.

1. Reduction Schedule for VOCs and NOx [42 U.S.C. 7511a (b)(1)]

In a moderate ozone non-attainment area, the 1990 Clean Air Act Amendments require States to implementation regulations to achieve a fifteen percent reduction in VOC emissions[2] [42 U.S.C. 7511a (b)(1)]. Emission

[2] The 1990 Clean Air Act Amendments did not mandate any specific percentage reduction in NOx emissions. The percentage reduction for VOCs is required only from anthropogenic (man-made) emission sources (point, area, on-road, and off-road). Biogenic (naturally

levels must be reduced below the VOC emission levels that existed in the area during the 1990 calendar year. These VOC reductions are to occur by November 15, 1996.

Theoretically, all States should have been able to submit an SIP to demonstrate appropriate ozone precursor reductions by the statutory deadline. Unfortunately, because of difficulties in data collection for the preliminary emissions inventory and calculation of the emissions baseline, (*we assume* that) Shaw was unable to comply in a timely fashion. Therefore, numerous regulations to reduce VOC emissions will be adopted under the revised Shaw SIP.

Shaw plan to submit proposed SIP revisions to EPA in two phases. Phase I will consist of a core set of rules, which comprise at least eighty five percent of the required VOC emission reductions. Phase I will be submitted to EPA for its approval by June 30, 1997.

Phase II will consist of rules to obtain any additional required reductions, as well as contingency measures. Phase II will be submitted to EPA by June 30, 1998. Proposed rules to reduce VOCs include regulations on vent gas emissions, industrial waste waters, municipal solid waste landfills, gasoline transfer operations, gasoline storage vessels, gasoline marketing, petroleum refining, solvent using processes, and gas utility engines (small bore).

2. An Extension of RACT Requirements [42 U.S.C. 7511a (b)(2)]

The second option is to extent RACT requirements to additional existing sources of VOC. All major stationary emission sources[3] located in ozone non-attainment areas must meet technology based emission levels defined as reasonably available control technology (RACT) standards.[4] RACT controls to be applied to both VOC and to NOx emissions. Because Shaw has failed to meet the deadline, the State has the responsibility of establishing RACT guidelines (including its extension), which are subject to EPA review [See National Steel Corp. V. Gorsuch, 700 F2d 314, (6th Cir. 1983)].

In the RACT context, this active approach is implemented through EPAs preparation of a Control Technique Guideline (CTG) document for targeted source categories [42 U.S.C. 7408 (d)]. For this approach to satisfy the regulatory standards for RACT, at least three conditions must be satisfied: (1)

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occurring) sources are not included. (See 42 U.S.C. 7511a (b)-(e))

[3] A source is designated as major if its emissions exceed certain levels. (42 U.S.C. 7502 (c)(1)).

[4] These standards are defined as the lowest emission limit that a particular source can meet by application of control technology that is reasonably available considering the technological and economic feasibility of such equipment. (See 55 Fed. Reg. 39,270 (1990))

high quality information must be used in the preparation of the CTGs; (2) controls identified in CTGs must not be denominated presumptive norms; and (3) the agency establishing RACT must be willing to review every source within the category and only make controls applicable to sources for which they are reasonably available [See William H. Lewis, Jr., *Reasonably Available Control Technology Under Clean Air Act: Is EPA Following Its Statutory Mandate?*, Harvard Environmental Law Review, Vol. 16:271, at 357 (1992)].

3. Gasoline Vapor Recovery Requirements [42 U.S.C. 7511a (b)(3)]

The third option is a gasoline vapor recovery. In a moderate non-attainment area, another mandatory regulation under the 1990 Clean Air Act Amendments requires the installation of vapor recovery systems at public and private fuel stations that dispense more than 10,000 gallons of gasoline per month [42 U.S.C. 7511a (b)(3)(A)].

To effectively reduce VOC emissions, Shaw should focus on using natural gas vehicle emission instead of gasoline. Where natural gas is used as a motor fuel, it is expected to displace gasoline or diesel fueled vehicles. As such, any incremental improvement in air quality will occur due to emission differences between the two fuel sources. A number of studies have suggested that natural gas fueled vehicles may provide significant emission benefits over gasoline powered vehicles [See Office of Mobile Sources, EPA, *Analysis Of The Economic and Environmental Effects Of Compressed Natural Gas As A Vehicles Fuel*, at 7 (1990) (special report)]. Natural gas is a relatively simple compound and is inherently cleaner than gasoline because on combustion, it emits less ozone reactive hydrocarbons or VOCs. The small amounts of VOCs or hydrocarbons that natural gas vehicle do emit are less likely to react in the atmosphere to form ozone than are the emissions that may originate in gasoline powered vehicles (See Office of Mobile Sources, Supra at 44).

Until recently almost all natural gas fuel systems relied on mechanical air-fuel mixers, devices that are analogous to carburetors on gasoline engines. Just as electronic fuel injection has replaced the carburetor, electronically controlled high-speed solenoid valve injectors have been used (See Office of Mobile Sources, Supra at 48). These valves insure that the air-fuel ratio is controlled to minimize NOx formation. When such equipment is used, NOx emissions from natural gas powered vehicles are less than one-fifth of those from conventional gasoline powered vehicles (See Office of Mobile Sources, Supra).

4. Inspection/Maintenance Program [42 U.S.C. 7511a (b)(4)]

In moderate to severe ozone non-attainment areas, EPA requires that a vehicle emission inspection and maintenance (I/M) program be implemented [42 U.S.C. 7511a (b)-(d)]. A moderate non-attainment area must implement a basic I/M program. Standards have been established for basic I/M programs which may require centralized testing, extensive automation, extensive oversight, and enforcement provisions (40 C.F.R. 51.350).

The purpose of the I/M program is to identify and ensure the repair of in-use automobiles that are emitting excessive pollutants. Under the revised Shaw SIP, substantial enhancements to the existing I/M program for on-road mobile sources will be required. The emission standards for vehicles will be tightened, with the new emissions standards to be phased in between 1997 and 1998.

5. The Submittal Completeness Memorandum [42 U.S.C. 7410 (k)(4)]

Under Section 110 (k)(4), EPA may conditionally approve revised SIPs, i.e., give States credit for timely compliance and thereby avoid imposition of sanctions.[5] Until recently, EPA applied this conditional approval authority generously by allowing States to make a submittal that merely contained a promise to submit rules imposing a control measure up to one year after the initial submission. The Submittal Completeness Memorandum[6] in effect redefined the completeness criteria EPA normally uses to assess whether a State has fully complied with the minimum content requirements for a revised SIP.[7]

The Submittal Completeness Memorandum encouraged States to continue work on SIP attainment plans by allowing an additional year for completion of development of plans to address ozone emissions. In addition, the Submittal Completeness Memorandum required a State to submit a detailed explanation of its need for further time to submit additional plan elements necessary for the remaining reductions. As an illustration, the

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[5] The Administrator may approve a plan revision based on a commitment of the State to adopt specific enforceable measures by a date certain, but not later than 1 year after the date of approval of the plan revision. Any such conditional approval shall be treated as a disapproval if the State fails to comply with such commitment. (42 U.S.C. 7410 (k)(4)

[6] Submitted by John S. Seitz, Sept. 1, 1994. (See SMU Law Review, *The Impact of the Clean Air Acts Ozone Non-Attainment Areas On Texas: Major Problems and Suggested Solutions*, 47 SMU L. Rev 451 (1994))[hereinafter Submittal Completeness Memorandum]

[7] The EPA has issued regulations detailing its normal procedure for assessing completeness of a State submittal. (40 C.F.R. 51, App. V (1995) The submittal Completeness Memorandum States that The EPA intends to modify those regulations to conform with the contents of the memorandum. (See Submittal Completeness Memorandum, Supra)

memorandum Stated that EPA expected to receive a time line showing the States past and future progress toward completion of modeling and rule adoption in order to justify delays and an explanation of gaps in that time line. Significantly, EPA suggested that the need for development of regional strategies necessary or appropriate to abate pollution may also be suitable explanations for certain delays.[8]

B. The Negative Consequences of Shaw Failure to Attain

When a State can no longer submit an SIP that will demonstrate compliance with the ozone NAAQS, it will run a foul of the requirements for timely and complete SIP submissions in Section 110. Moreover, Section 110(k)(5) directs EPA to make a ASIP call at any time it finds a States SIP inadequate to reach attainment and to give the State a reasonable period, not to exceed eighteen months, to rectify the shortcoming [42 U.S.C. 7410 (k)(5)]. Failure to demonstrate timely attainment or other infractions regarding SIP submission are grounds for EPA to sanction a State. Under section 179, EPA may sanction a noncomplying State within its discretion at any time following a finding of noncompliance and must sanction a noncomplying State eighteen months following such a finding [42 U.S.C. 7509 (a)-(b)].

1. A Cutoff of Federal Highway Funds

EPA can take away the States highway fund if it did not meet the deadline for attainment. It is clear from CAA that the Administrator may impose a prohibition, applicable to a non-attainment area, on the approval by the Secretary of Transportation of any project or the awarding by the Secretary of any grants, ... other than projects or grants of safety... [42 U.S.C. 7509 (1)(A)]. Such prohibition shall become effective upon the selection by the EPA Administrator.

The methodology contemplated of consistency between proposed highway project and a State implementation plan for air quality is an expansion of the potential effect of the subject highway project with the specific parts of the applicable implementation plan (The Movement against Destruction et al. v. Richard H. Trainor, 400 F 2d. 533 (1975).

2. Reclassification to The Higher Classification

The EPA Administrator shall determine, within 6 months following the applicable attainment date (including any extension thereof) for an ozone non-attainment area, whether the area attained the standard by that date. If the EPA

[8] Id. Submittal Completeness Memorandum, at 23.

Administrator identify that an area has failed to attain and identifying the reclassification, it shall publish a notice in the Federal Register, no later than 6 months following the attainment date [42 U.S.C. 7511 (b)(2)].

Ozone non-attainment areas must abide by all planning and control requirements found in their classification.[9] The classification control is a graduated program, meaning that each classification must conform to all of the requirements for all lower classifications, plus additional requirements. Those areas that are designed with higher classifications (indicating a more serious pollution problems) have more time to attain the NAAQS, but are subject to progressively more stringent control.[10]

The EPA Administrator shall grant the request of any State to voluntarily reclassify a non-attainment area in that State to a higher classification. The EPA Administrator shall also publish a notice in the Federal Register of any such request and of action by the Administrator granting the request [42 U.S.C. 7511 (b)(3)]

3. Federal Implementation Plan

Ultimately, if the State is unable to implement emissions controls sufficient to reach attainment, Section 110 (C) contemplates that EPA shall take over this responsibility and develop a Federal Implementation Plan (FIP) [42 U.S.C. 7410 (c)].

Basically once an SIP is approved by EPA, the SIP has the force of federal law [42 U.S.C. 7413 (b)(1)]. If the State either submits an inadequate plan or fails to meet the submission deadline, EPA is directed to draft a plan for the State [42 U.S.C. 7410 (c)(1)]. This federal implementation plan (FIP) is defined as: a plan (or portion thereof) promulgated by the administrator to fill all or a portion of a gap or otherwise correct all or a portion of an inadequacy in a State implementation plan, and which includes enforceable emission limitations or other control measure, means, or techniques (including economic incentives, such as marketable permits or auctions of emissions allowances) and provides for attainment of the relevant national ambient air quality standard [42 U.S.C 7602 (y)].

The FIP process strips a States authority to make its own technical, economic, and political decisions regarding pollution control. The EPA officials have expressed hesitancy to impose FIPs when the Agency cannot reduce emissions faster than the States themselves [See *Environmental Groups Sue The EPA Over VOC-Reduction Enforcement,* Daily Env. Rep.

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[9] Hon. Henry A. Waxman et al., *Roadmap to Title I of the Clean Air Act Amendments of 1990: Bringing Blue Skies Back to Americas Cities,* 21 ENVTL. L. 1843, 1852 (1991)
[10] Id. at 1873.

(BNA) No. 118 (June, 19, 1996)]. If a State has some sources of ozone such as its citizens automobiles, the CAA will require EPA to devise controls to reduce ozone that the drivers or industry of the State might consider draconian [See Wash. Legal Found., Legal Opinion Letter, *The California Federal Implementation Plan (FIP): EPAs Formula For Economic Disaster* (July 15, 1994)(describing the FIP as draconian in its impact and impractical in its requirements)]. Inhabitants of the State must then endure the control measures necessary to reach attainment for their own emissions.

IV. CONCLUSION

The State submitting a SIP revision has three options to comply with the statutory requirements: (i) a specific annual reduction schedule for VOCs and NOx [42 U.S.C. 7511a (b)(1)]; (ii) an extension of RACT requirements to additional existing sources of VOCs [42 U.S.C. 7511a (b)(2)]; and (iii) gasoline vapor recovery requirements (known as stage II controls) [42 U.S.C. 7511a (b)(3)]. In addition, the State may conditionally propose the Submittal Completeness Memorandum to avoid imposition sanction [42 U.S.C. 7410 (k)(4)]. As a moderate ozone non-attainment area not already required by prior law to adopt and implement a motor vehicle inspection and maintenance program, the State must also submit an SIP revision providing for such a program (I/M program) immediately [42 U.S.C. 7511a (b)(4)].

To meet air quality goals, the most effective option should be pursued. The above examination outlines the five options the State can choose. Mobile sources should be the most important means to meet federal air quality standards. Regulations to implement mobile sources program should be adopted as soon as possible in order to encourage environmental needs of the citizens of Shaw.

Finally, the State faces three negative consequences if it does not meet the statutory requirements: (i) a cut off of federal highway funds; (ii) reclassification to the higher area; and (iii) federal implementation plan. The worst scenario is that if the State does not timely submit an SIP, it may be subject to federal regulation under a federal implementation plan (FIP).