

# Air Pollution - Automobile Smog: A Proposed Remedy

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## LEGISLATION NOTES

### AIR POLLUTION—AUTOMOBILE SMOG: A PROPOSED REMEDY

Air is an essential so basic to the existence of man that any real problem concerning the air and its uses, it would seem, should be given immediate and preferential treatment. Yet, it takes events of disastrous proportion to stir an awareness of the problem of air pollution which faces all the world. The "needed" disasters have taken place,<sup>1</sup> and now, slowly and painstakingly, the patchwork of curative and preventive machinery across the nation has been set in motion.

Pollution of our air blanket occurs everywhere, continuously, in both natural and artificial ways. Natural methods of pollution, such as simple breathing or complex volcanic eruption, are not a large problem. Nature is providentially designed to withstand and correct these situations, and only extremely adverse conditions will give rise to any lasting problem. Ironically enough, it is man's contribution to air pollution, caused primarily by his progress in other areas, which is of large and lasting significance.

The contaminants we discharge into the air mirror virtually all of our activities which utilize materials for domestic, commercial, agricultural, industrial, or other purposes.<sup>2</sup>

Air pollution,<sup>3</sup> in combination with other factors, becomes dangerous to man, the animals, and plant life. Probably the major factor in analyzing the problem today is the urbanization of the vast majority of our population.

<sup>1</sup> In December, 1930, the highly industrialized Meuse Valley in Belgium suffered a serious air pollution attack which left 60 dead and thousands ill. London has had two such deluges of dirty air, in 1952 and in 1962, which caused an increase of 4000 and 340, respectively, in the usual mortality rate figures. Finally, in Donora, Pennsylvania, the problem dramatically struck this country when, in 1948, air pollution left 17 dead and 4600 ill as a result of a five day invasion of polluted air. Blyth, *Can We Clean Up Our Sewers in the Sky?*, *Commerce* (Chicago Association of Commerce and Industry, December, 1963.)

<sup>2</sup> COMMITTEE ON PUBLIC WORKS, UNITED STATES SENATE, A STUDY OF POLLUTION—AIR 2 (1963).

<sup>3</sup> U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, ELEMENTS OF AIR QUALITY MANAGEMENT sec. II, p. 1, defines air pollution as: "... the presence in the outdoor atmosphere of one or more contaminants or combinations thereof in such quantities and of such duration as may be, or may tend to be injurious to human, plant, or animal life, or property, or which unreasonably interfere with the comfortable enjoyment of life, or property, or the conduct of business."

Two-thirds of the population of the United States reside in the 212 standard metropolitan statistical areas, which have a combined area of 310,233 square miles, representing approximately 9 per cent of the total land area of the United States.<sup>4</sup>

Broken down even further, on the basis of raw population figures from the 1960 census, 53% of the people in the United States live on considerably less than 1% of the land area.<sup>5</sup> Weather and geography also play important parts in air pollution, but time and space prevent a detailed discussion of those factors here.<sup>6</sup>

#### MOTOR VEHICLES AND THEIR EFFECT

Initial efforts to quell the air pollution problem focused on permanent, stationary sources of contaminants. Studies and statistics shortly indicated, however, that urban areas would soon have to come to grips with the problems of contamination from motor vehicles. Studies show that in 1960, there were 61½ million automobiles and over 11 million trucks registered in the 50 states and District of Columbia.<sup>7</sup> Of this total, approximately 5½ million cars are registered in 4 cities, New York, Washington, D.C., Chicago, and Los Angeles.<sup>8</sup> Los Angeles County, the subject of intensive study with regard to motor vehicle air pollution, illustrates the seriousness of the problem with the following data, the result of a study dated 1960:

Automobiles are estimated to contribute daily about 1500 tons of hydrocarbons, (exclusive of evaporation loss), about 450 tons of oxides of nitrogen, and about 9000 tons of carbon monoxide.<sup>9</sup>

While studies regarding motor vehicle air pollution are relatively embryonic in the majority of geographic and political areas, with the exception of Los Angeles, there is somewhat more information available concerning the effects of air pollution, due in large part to federal studies. The three major interests are health, agriculture, and general economic loss. Automobiles are heavy contributors to what today is commonly called smog.<sup>10</sup> In Los Angeles County, for example, it is felt that motor

<sup>4</sup> COMMITTEE ON PUBLIC WORKS, *supra* note 2, at 6.

<sup>5</sup> *Id.*

<sup>6</sup> For a brief but concise explanation of these factors, see *supra* note 2, at 10.

<sup>7</sup> U.S. DEPT. OF HEALTH, EDUCATION, AND WELFARE, MOTOR VEHICLES, AIR POLLUTION, AND HEALTH 257 (1962).

<sup>8</sup> *Id.* at 21.

<sup>9</sup> *Los Angeles County Air Pollution Control District Report 1* (April 1960).

<sup>10</sup> "Smog" originally referred to a combination of smoke and fog, such as is frequently encountered in London. More recently the term has been applied to the situation in Los Angeles where neither smoke nor fog is particularly a significant factor, but

vehicles are responsible for 80% of the photochemical smog present.<sup>11</sup> There is not available, as yet, specific detailed data with regard to mortality rates and the relation to vehicular pollution because of the difficulty in differentiating the pollutant factors one from another.

In Los Angeles, where the blame for pollution is laid to the large number of automobiles and to the combustion of hydrocarbons . . . eye irritation remains the major manifestation.<sup>12</sup>

Attempts are now being made to use eye irritation as an index to related health factors, and these studies, as well as other approaches to the question, are presently in progress.

Vehicular air pollution has the effect, through the complex photochemical reaction which takes place in the air blanket, of producing ozone, which contaminant has been shown to have a very adverse effect on vegetation.<sup>13</sup> Smog damage to crops is currently estimated to amount to approximately \$8 million in California every year, and to approximately \$18 million in the Eastern part of the United States, with ozone from the automobiles the major factor.<sup>14</sup>

General economic effects of air pollution are enormously hard to ascertain, but one frequently employed estimate indicates a \$65 per capita annual loss, a staggering amount in excess of \$11 billions per year.<sup>15</sup>

It should be fairly obvious at this point that the problem herein discussed is one of import and significance to the entire country, and especially to those living in urban areas.<sup>16</sup> And so, an examination of a possible solution, or solutions, should at this point be timely.

#### STATUTORY SOLUTIONS

It is imperative that the air pollution problem be abated. Hopefully, the foregoing information was evidence of the need. The problem, of course, is to achieve the desired goal in the most salutary fashion possible, and there are present the inevitable alternatives as to method. The

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rather a "photochemical smog" resulting from a series of chemical reactions brought about or accelerated by solar energy (sunlight). The motor vehicle is one of the chief sources of the hydrocarbons and nitrogen oxides necessary for this reaction. See *supra* note 2, at 3.

<sup>11</sup> Clarkson and Middleton, *The California Control Program for Motor Vehicle Created Air Pollution*, 12 J. AIR POLLUTION CONTROL ASS'N 28 (1962).

<sup>12</sup> *Supra* note 7, at 201.

<sup>13</sup> *Supra* note 2, at 18.

<sup>14</sup> Nelson, *Effects of Motor Vehicle Pollutants*, NATIONAL CONFERENCE ON AIR POLLUTION PROCEEDINGS 55 (1962).

<sup>15</sup> *Supra* note 2, at 20.

<sup>16</sup> More information is available concerning the effects of air pollution. The sources cited above contain generous supplies of information and will also refer the reader to numerous publications which can be of assistance both generally and technically.

automobile industry has, to a limited degree, taken steps to assist. But the industry seems reluctant to establish nationwide production standards in conformance with standards they have adopted to meet the California legislation. Seemingly then, the only really effective method available is legislation, but the nature, source, and timeliness thereof constitute the major problems today.

The legislative approach to the motor vehicle air pollution problem has been employed by only a small minority of legislatures. California has been far and away the leader in this area and has the most comprehensive legislation to date, more of which will be forthcoming as the programs and studies mature. The vast majority of other states have no statutory provision regulating motor vehicle air pollution whatsoever. Indiana,<sup>17</sup> Kansas,<sup>18</sup> and New Hampshire<sup>19</sup> have general nuisance-type statutes which require mufflers on motor vehicles and prohibit annoying smoke and the excessive escape of fumes or smoke. New York<sup>20</sup> requires crankcase ventilation equipment as approved by their state air pollution board on all cars manufactured or assembled after June 30, 1963. Massachusetts<sup>21</sup> and Pennsylvania<sup>22</sup> have statutes providing for investigation into the problem of motor vehicle air pollution, and a provision for recommendation of any needed legislation to abate the problem as found. Washington, D.C.<sup>23</sup> prohibits motor vehicle emissions darker than no. 2 Ringlemann, a system for the measurement of smoke emissions, usually of an industrial nature. The lack of needed uniform legislation is particularly noticeable in light of figures which show that photochemical smog manifestations have been observed in urban areas in twenty states and the District of Columbia.<sup>24</sup>

#### CALIFORNIA

The only state with really significant legislation dealing with the motor vehicle air pollution problem is California. A Motor Vehicle Pollution Control Board has been established<sup>25</sup> and given the following powers and duties: 1) to adopt rules and regulations as needed; 2) to employ neces-

<sup>17</sup> IND. ANN. STAT. § 46-2(e) (1961).

<sup>18</sup> KAN. GEN. STAT. ANN. § 8-5 (Supp. 1963).

<sup>19</sup> N.H. REV. STAT. ANN. § 263:46 (1961).

<sup>20</sup> N.Y. VEHICLE AND TRAFFIC LAW § 375.28a.

<sup>21</sup> Mass. Laws 1962, ch. 22, which was approved March 7, 1962.

<sup>22</sup> Pa. Laws 1962, serial no. 2, which was adopted January 29, 1962.

<sup>23</sup> Traffic Code and Motor Vehicle Regs, D. C. CODE ANN. § 144(b).

<sup>24</sup> Middleton & Haagen-Smit, *The Occurrence, Distribution, and Significance of Photochemical Air Pollution in the United States and Canada*, presented to the 53rd Annual Meeting, Air Pollution Control Association, Cincinnati, Ohio, (May 1960).

<sup>25</sup> CAL. HEALTH & SAFETY CODE §§ 24378 to 24398.

sary personnel; 3) to determine and publish criteria for approval of motor vehicle pollution control devices; 4) to issue certificates of approval for laboratory tested devices complying with state established standards; 5) to exempt from compliance certain vehicles when necessary and/or proper; 6) to revoke, suspend or restrict a certificate of approval or exemption as information becomes available necessitating the improvement and updating of control devices; 7) to report to the governor and legislature at each general session and recommend any needed legislation; 8) to adopt regulations outlining procedures for submission of control devices for testing and certification; 9) to notify the Department of Motor Vehicles when the board approves two or more control devices for which standards have been set by the state; 10) to hold open board meetings.

Enforcement of the statute in California has been provided for in two ways: 1) violation of the Motor Vehicle Pollution Control Act constitutes a misdemeanor,<sup>26</sup> and 2) no vehicle is to be registered unless properly certified, under penalty of perjury, that it is equipped with the approved required device or devices.<sup>27</sup> The certifying is to be done by designated official inspection and installation stations pursuant to the Motor Vehicle Code.<sup>28</sup>

The effect of the California legislative program is already being felt in that state. Approximately 25% of the motor vehicles in California today are equipped with crankcase devices,<sup>29</sup> and by October, 1965, this figure will be increased to 85%.<sup>30</sup> The study of devices for the control of exhaust fumes is yet to be completed, but it is anticipated that two or more such devices will soon be approved, which will mean mass production of such devices and their installation in new cars sold in California in 1966.<sup>31</sup> Preliminary work has been begun with regard to diesel vehicles, the problem being somewhat different than with automobiles, and controls in this field are still somewhat speculative.

#### LOCAL PROGRAMS

It seems apparent that California's legislative program is paying handsome dividends, and will continue to do so. But the problem is as yet

<sup>26</sup> CAL. HEALTH & SAFETY CODE § 24381.

<sup>27</sup> CAL. VEHICLE CODE § 4000.1 (a).

<sup>28</sup> CAL. VEHICLE CODE §§ 28500, 28501, 28504.

<sup>29</sup> This device is commonly called the "blowby" device. It returns unburned fuel, air, and exhaust from the crankcase to the cylinders to be burned, see *supra* note 7 at 441. This type of emission is said to contribute about 25% of the total motor vehicle emission, see *supra* note 11 at p. 23.

<sup>30</sup> Jensen and Grant, *Status of Control of Motor Vehicle Emissions in California*, 14 J. AIR POLLUTION CONTROL ASS'N, 484 (Dec. 1964).

<sup>31</sup> *Supra* note 30, at 484, 485.

unapproached in many urban areas across the country which lack state legislative action to assist them. Many have taken matters into their own hands and have attempted to cope with the problem through municipal ordinances, to whatever extent they are free to operate.

Statistics indicate that in 1962, there were 86 local air pollution control agencies spending \$5,000 per year or more, 34 of which spent in excess of \$25,000 per year.<sup>32</sup> There are 218 urban areas in the United States which have a population of 50,000 or more and a major or moderate air pollution problem. Of these, only 119, or 55%, are served by an air pollution control agency.<sup>33</sup>

Local programs find themselves hampered by the usual problems, lack of funds, lack of enabling state legislation, and the inability to control effectively a problem which crosses jurisdictional lines. This last problem is particularly vexing with motor vehicle pollution because of the aspect of mobility of source, *e.g.*, the use of motor vehicles for transportation into an urban area, which is often a daily trip for urban employees who live outside the jurisdictional bounds.<sup>34</sup>

All too often the local government, attempting to legislate against motor vehicle pollution, has little or no technical information available concerning its problem, and the result is weak, ineffective legislation.<sup>35</sup> Some cities have enacted ordinances setting up standards based on the Ringlemann Scale,<sup>36</sup> for example, Washington, D.C., which sets no. 2 Ringlemann as smoke dense enough to constitute a violation.<sup>37</sup> (This seems somewhat senseless in light of the California studies which show that motor vehicle air pollutants are fairly unobservable at the time of emission.) New York City, at the other end of the extreme, requires that a motor vehicle cannot be operated which emits visible smoke or fumes

<sup>32</sup> Schueneman, *Air Pollution Problems and Control Programs in the United States*, 13 J. AIR POLLUTION CONTROL ASS'N. 120 (March 1963).

<sup>33</sup> *Supra* note 32.

<sup>34</sup> James F. Fitzpatrick, Director, Chicago Department of Air Pollution Control, has stated that 40% of the cars in Chicago on an average day come from outside the city. "He said local legislation would not apply to the 350,000 vehicles from outside Chicago which are part of city traffic on an average day." Quoted from an article appearing in the *Chicago Sun-Times*, September 2, 1964, p. 4, col. 5 (One Star ed.).

<sup>35</sup> The Chicago Municipal Code, while fairly lengthy in dealing with sources of other pollutants, has only one short provision for motor vehicles. Chapter 17-32 states: "Internal combustion engines of any motor vehicle, . . . shall not, while stationary or moving, emit any unreasonable and excessive smoke, obnoxious or noxious gases, fumes, or vapor." This is hardly a "toothy" ordinance, and yet offers substantially more than does the Illinois Air Pollution Control Act.

<sup>36</sup> The Ringlemann Scale is a system of measuring emissions based on the density and coloring of the emissions as they leave the source.

<sup>37</sup> D. C. CODE ANN. § 6-8-1 (1961).

while stationary or while moving for a distance of over 100 yards upon city streets, roads or highways.<sup>38</sup> Many other cities have extensive air pollution ordinances but have yet to treat the problem of motor vehicle air pollution therein, as for example Detroit and St. Louis.<sup>39</sup>

#### THE FEDERAL PROGRAM

The federal program, up until now, has been one of research and assistance, all done with an eye to effective local control and regulation in the future. Begun in 1955 with the passage of Public Law 84-159, the purpose of the program has been three-fold: 1) to gain knowledge of the problem and of the means of control, 2) application of the knowledge through technical assistance to the states, communities, and industry, and 3) to stimulate nationwide interest in the problem and the means of control.<sup>40</sup> Motor vehicle air pollution was the subject of further legislation in 1960, when under Public Law 86-493 the Surgeon General was directed to study motor vehicle air pollution and report to Congress within two years. That report, House Document 489, was published in 1962 and added support to the arguments in favor of stronger motor vehicle air pollution regulation. Finally, in October, 1964, a report by the Special Subcommittee on Air and Water Pollution was made to the Senate Committee on Public Works.<sup>41</sup> The results of the Subcommittee study on motor vehicle air pollution are less than encouraging, and favor future federal legislation to cope with this serious and growing problem.

In all of the hearings held since the adoption of the Clean Air Act of 1963, automotive exhaust was cited as responsible for some 50 per cent of the national air pollution problem. It is, in many respects, the most important and critical source of air pollution, and it is, beyond question, increasing in seriousness despite preliminary and isolated efforts to control it.<sup>42</sup>

The Subcommittee seemed, in its report, to be especially befuddled with the Automobile Manufacturers Association testimony on behalf of the industry, in that although new cars destined for California beginning in 1966 would be equipped with approved exhaust control devices, no others would be similarly outfitted.<sup>43</sup>

<sup>38</sup> NEW YORK CITY ADMIN. CODE, ch. 47, Rule 9(b).

<sup>39</sup> For an exhaustive compilation of municipal ordinances, see U.S. DEPT. OF HEALTH, EDUCATION AND WELFARE, DIGEST OF MUNICIPAL AIR POLLUTION ORDINANCES, (Public Health Service Pub. No. 982, 1962).

<sup>40</sup> *Supra* note 2, at 25.

<sup>41</sup> SPECIAL SUBCOMM. ON AIR AND WATER POLLUTION, U.S. SEN. COMM. ON PUBLIC WORKS, STEPS TOWARD CLEAN AIR, (1964).

<sup>42</sup> *Id.* at 3.

<sup>43</sup> Senator Muskie, speaking here with reference to the automobile industry's intention to market control devices only on California cars, asked the following question



As a result of the frustrating possibility of having 50 different standards across the nation, necessitating an equal number of types of controls, the Special Subcommittee recommended federal legislation designed to make uniform the standards to be met across the country:

It is therefore recommended that legislation be considered which would require that, on or before one year after passage of such legislation, all gasoline-powered motor vehicles manufactured and introduced into interstate commerce or imported into the United States be required to meet standards where emissions of hydrocarbons and carbon monoxide are no greater than those the industry has agreed to meet in California and that rules and regulations be promulgated to insure proper operation and maintenance of the exhaust control equipment installed on such vehicles.<sup>44</sup>

With the recommendations of uniform standards and continuing research into areas such as diesel engine exhaust, as made by the Special Subcommittee, the federal program grinds to a halt until further action is taken by Congress.

#### CONCLUSION

Air pollution caused by motor vehicles is rapidly coming to be recognized as a major source of the air pollution problem. The study and treatment of the problem will have to be stepped up as urban areas continue to grow and automobile production increases. The problem has only been partially solved, and its continuing adverse effects are costly in terms of health, agriculture, and general economic loss.

The solutions to the problem range from self-imposed controls within the automobile industry itself to federal legislation. State programs, such as in California, would be most desirable, enforcement at the local level being the most effective. The federal work to date has been aimed at this objective.

It would appear that a locally enforced program offers the most effective solution. The major difficulty lies in large urban areas extending into two or more states, wherein travel from one jurisdiction to another raises the question of irregular standards and difficult enforcement. Two approaches are available in solving this dilemma, the interstate compact approach and federally set standards. The federal approach speaks for itself, and the

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of Mr. George A. Delaney, smog consultant to the Automobile Manufacturers Association:

*Sen. Muskie:* "Now, what harm does it do to control the same emissions in 49 other states?"

*Mr. Delaney:* "There would be no harm, but it is an economic burden on the—it may be an economic burden on the rest of the country." *Hearings before a Special Subcommittee on Air and Water Pollution of the United States Senate Committee on Public Works* pt. 2 at 880 (1964).

<sup>44</sup> *Supra* note 41, at 6.

interstate compact approach consists simply of agreement between states as to standards and enforcement. Either could be very effective, but because of the apoplectic attitude on the part of the majority of states to move in favorable directions, it seems fairly certain that a system of federal standards coupled with local control and enforcement would best fit the needs of the nation in meeting this ever more serious and dangerous of enemies, air pollution.

*Quintin San Hamel*