§ 2.04 State and Local Regulation of Air Pollution

[1] State Air Pollution Legislation and Enforcement

The Clean Air Act imposes very substantial responsibilities for standard setting and enforcement on the federal government.[1] The federal government is solely responsible for setting ambient air quality standards. For new source standards and hazardous air pollutant standards, both standard setting and enforcement are primarily federal tasks.[2] In the case of ambient air quality standards state implementation plans—approved by the Administrator—are called for.[3] For new source standards and hazardous air pollution emission standards, however, state implementation is discretionary—it is not required.[4] In both instances, if a state undertakes to regulate new sources and hazardous air pollutant emissions, the Administrator must turn over the task of enforcement, though he retains enforcement powers concurrently.[5]

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[1] *69 Stat. 322* (1955), as amended *77 Stat. 392*, as amended by the Clean Air Act Amendments of 1990, ***Pub. L. No. 101-549*** (1963), as amended *79 Stat. 922* (1965), as amended *81 Stat. 485* (1967), as amended *84 Stat. 1676*, *42 U.S.C. § 1857 et seq. (1971)*.

[2] *84 Stat. 1683*, 1685 (1970), *42 U.S.C. § 7411*, *7412*.

[3] *84 Stat. 1680* (1970), *42 U.S.C. § 7410*.

[4] *84 Stat. 1680* (1970), *42 U.S.C. §§ 7411(c)*, *7412(d)*.

[5] *84 Stat. 1680* (1970), *42 U.S.C. §§ 7411(c)*, *7412(d)*.

In *Alliance for Clean Coal v. Miller, 44 F.3d 591, 25 ELR 20510 (7th Cir. 1995)*, the Seventh Circuit held that the Illinois Coal Act violated the *Commerce Clause of the U.S. Constitution*. The Act required utilities and the State's commerce commission to consider the impact CAA compliance plans would have on the Illinois coal industry. It encouraged the use of scrubbers, mandating their use for some large utilities, and required state approval before a utility could cut its Illinois coal consumption by ten percent. The defendants argued that the Act merely encouraged use of local coal, and that the State was acting as a market participant. The court rejected both claims, and held that the Act had the same effect as a tariff on out-of-state coal. Since the purpose of the Illinois Coal Act was to discriminate against low-sulfur Western coal, it failed to meet the strict scrutiny standard of the *Commerce Clause*.

The court's judgment in Alliance for Clean Coal v. Miller has been criticized as neglecting modern environmental and industrial concerns, and restricting state sovereignty, suggesting that state autonomy will be sacrificed under the dormant *Commerce Clause* even where the state furthers important environmental goals. *See* Jennifer A. Irrgang, *Poof, Up in Smoke! The Coal Industry Gets Burned: The Seventh Circuit Incinerates State Autonomy with Its Strict Interpretation of the Dormant Commerce Clause in Alliance for Clean Coal v. Miller*, *8 Vill. Envtl. L.J. 259, 289 (1997)*.

In *Alliance for Clean Coal v. Bayh, 72 F.3d 556, 26 ELR 20557 (7th Cir. 1995)*, the court held that the provisions of Indiana's Environmental Compliance Plans Act that favored a utility's use of Indiana coal violated the *Commerce Clause*, finding the provisions virtually identical to sections of the Illinois Coal Act that the court had held unconstitutional in *Alliance for Clean Coal v. Miller, supra.*

The Administrator may take over air pollution enforcement in any state during "periods of federal assumed enforcement" if a state fails to carry out its own implementation plan.[6] In spite of the involvement of the federal government in enforcement it is nonetheless clear that the federal law still assumes, implicitly if not explicitly, that the states will continue, in the case of stationary sources, to bear the major burden of enforcement as heretofore. The provisions of law relating to state implementation plans, though indeed they provide for federal rule-making and federal implementation in case of state failures, nonetheless anticipate a continuing and active involvement by the states in air pollution control. Even in instances where the primary authority is lodged in the Administrator, both to set standards and to carry out enforcement activities—as in the case of the new source regulations and in hazardous air pollutant emission standards—the states are invited to assume responsibility and to cause the Administrator to turn over the enforcement task to them. Moreover, the federal law states that (except for certain preemptive provisions relating to moving sources of emission) nothing in the federal air pollution control laws "shall preclude or deny the right of any state or political subdivision thereof to adopt or enforce (1) any standard or limitation respecting emissions of air pollutants, or (2) any requirement respecting control or abatement of air pollution" as long as the standards set by the state or locality are not less stringent than the standards or limitations under the approved state implementation plan or other requirement of federal law.[7]

Largely in response to federal air pollution control legislation that required state action, first as a condition of federal grants-in-aid,[8] and later in order to meet federal ambient air quality standards,[9] all of the fifty states, the District of Columbia, the Commonwealth of Puerto Rico and the Virgin Islands have enacted air pollution control legislation.[10] Initially, state laws provided rather limited enforcement powers and in many states authorized

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[6] *84 Stat. 1686* (1970), *42 U.S.C. § 7413*.

[7] *84 Stat. 1686*, *81 Stat. 497 (1967)*, as amended *84 Stat. 1678, 1689 (1970)*, *42 U.S.C. § 7416*.

[8] *77 Stat. 395* (1963), as amended ***79 Stat. 992*** (1965), as amended *80 Stat. 954* (1966), as amended *81 Stat. 489* (1967), as amended *84 Stat. 1677*, 1713; *42 U.S.C. § 1857c (1971)*.

[9] *84 Stat. 1680* (1970), *42 U.S.C. § 7410*.

[10] Ala. Code tit. 22, §§ 22-28-1 to 22-28-23 (Supp. 2000).

Alaska Stat. §§ 46.14.010 to 46.14.990 (2000).

Ariz. Rev. Stat. Ann. § 49-401 et seq. (West 2000).

Ark. Code Ann. §§ 8-4-301 to 8-4-315 (Michie 2000).

Cal. Health & Safety Code Ann. § 39000 et seq. (Supp. 2001).

Colo. Rev. Stat. Ann. §§ 25-7-101 to 25-7-1309 (West Supp. 2001).

Conn. Gen. Stat. Ann. §§ 22a-170 to 22a-196 (West Supp. 2000).

Del. Code Ann. tit. 7, §§ 6000–6021, *6028*, *6701–6708 (Supp. 2000)*.

D.C. Code §§ 6-904 to 6-906 (Supp. 2001).

Fla. Stat. Ann. § 403.011 et seq. (West Supp. 2001).

Ga. Code Ann. §§ 12-9-1 to 12-9-57 (Supp. 2000).

Haw. Rev. Stat. Ann. §§ 342B-1 to 342B-63 (Supp. 2000).

Idaho Code Ann. § 39-101 et seq. (Supp. 2000).

standard setting within a rather narrowly defined range. Early air pollution control legislation in the several

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415 Ill. Comp. Stat. Ann. 5/8 to 5/10 (Supp. 2000).

Ind. Stat. Ann. §§ 13-17-1-1 to 13-17-14-11 (Supp. 2000).

Iowa Code Ann. §§ 455B.131 to 455B.160 (Supp. 2001).

Kan. Stat. Ann. § 65-3001 et seq. (Supp. 2000).

Ky. Rev. Stat. Ann. §§ 224.20-050 to 224.20-765 (Supp. 2000).

La. Rev. Stat. Ann. §§ 30:2051 to 30:2065 (2000).

Me. Rev. Stat. Ann. tit. 38, § 581 et seq. (West 2001).

Md. Code Ann., Envir. §§ 2-101 to 2-901 (Supp. 2000).

Mass. Ann. Laws ch. 111, §§ 31C, *142A-N* (Supp. 2001).

Mich. Comp. Laws Ann. § 324.5500 *et seq.* (Supp. 2001).

Minn. Stat. Ann. § 116.01 et seq. (Supp. 2001).

Miss. Code Ann. §§ 49-17-1 to 49-17-45 (Supp. 2000).

Mo. Ann. Stat. §§ 643.010 to 643.620 (West 2000).

Mont. Code Ann. §§ 75-2-101 to 75-2-514 (1997).

Neb. Rev. Stat. § 81-1501 et seq. (1999).

Nev. Rev. Stat. §§ 445B.100 to 445B.845 (2000).

N.H. Rev. Stat. Ann. §§ 125-C:1 to 125-C:21 (Supp. 2000).

N.J. Stat. Ann. §§ 26-2C-1 to 26-2C-36 (Supp. 2000).

N.M. Stat. Ann. §§ 74-2-1 to 74-2-22 (Supp. 2000).

N.Y. Envtl. Conserv. Law § 19-0101 et seq. (McKinney 1997 & Supp. 2001).

N.C. Gen. Stat. § 143-211 et seq. (1999).

N.D. Cent. Code Ann. §§ 23-25-01 to 23-25-11 (Supp. 1999).

Ohio Rev. Code Ann. §§ 3704.01 to 3704.99 (Supp. 2001).

Okla. Stat. Ann. tit. 27A, §§ 2-5-101 to 2-5-118 (Supp. 2001).

Or. Rev. Stat. Ann. §§ 468A.005 to 468A.992 (Supp. 1998).

Pa. Stat. Ann. tit. 35, §§ 4001 to 4106 (Supp. 2001).

P.R. Laws Ann. tit. 24, §§ 341 to 341P (1999).

R.I. Gen. Laws §§ 23-23-1 to 23-23-28 (Supp. 2000).

S.C. Code of Laws § 48-1-10 *et seq.* (Supp. 2000).

states generally allowed the air pollution control agency to establish emission standards for substances of demonstrable hazard to health and property. Agencies were considerably limited in setting standards in instances where hazard and injury to life, health, and property were likely or probable but not demonstrable.[11] Moreover, early air pollution control legislation generally provided for standard setting by some state air pollution control board, which, in most instances, was overly representative of the very interests sought to be regulated. Frequently, industry representatives made up a very substantial portion of the board membership and even in instances where the proportion was not unduly large, the requirement that the board be composed of a certain number of persons trained in air pollution control technology meant that technically trained persons, normally employed by industry or by utility companies, would have a major role in the rule-making process.[12] Thus, there was a tendency in early state air pollution control legislation to allow the very industries that were the most responsible for air pollution problems to be largely in charge of setting the standards to be enforced by the state agency.

Other defects in early state legislation could be found on the remedial or sanctions side. Even in instances where the enforcing agency had found excessive emissions, these laws frequently required an extended period of "conciliation" before more decisive enforcement action could be taken.[13] In general, these conciliation requirements were roughly analogous to the conference procedure established in the federal law in the 1963 Clean Air Act.[14] Usually there was a requirement for ample notice, followed by conferences or hearings, with extended periods to allow for voluntary compliance. Only after the lapse of such extended periods following or followed by conciliation meetings could the state agency take the matter to court for more decisive action.[15]

S.D. Codified Laws §§ 34A-1-1 to 34A-1-62 (Supp. 2000).

Tenn. Code Ann. §§ 68-201-101 to 68-201-203 (Supp. 2000).

Tex. Health & Safety Code Ann. §§ 382.001 to 382.143 (Vernon 2001).

Utah Code Ann. §§ 19-2-101 to 19-2-127 (Supp. 1999).

Vt. Stat. Ann. tit. 10, §§ 551 to 576 (1998).

V.I. Code Ann. tit. 12, §§ 201 to 221 (Supp. 2001).

Va. Code Ann. §§ 10.1-1300 to 10.1-1326 (Supp. 2000).

Wash. Rev. Code Ann. §§ 70.94.011 to 70.94.990 (Supp. 2001).

W. Va. Code Ann. §§ 22-5-1 to 22-5-18 (Supp. 2000).

Wis. Stat. Ann. §§ 285.01 to 285.87 (Supp. 2000).

Wyo. Stat. Ann. § 35-11-101 et seq. (1994).

For discussion of specific state air pollution control laws, see, *e.g.*, Anon, *Industrial Air Pollution Control in Alabama*, 2 Cumber-Sam L. Rev. 198 (1971); Note, *Legal Aspects of Air Pollution Control in Ohio 1971: Critique and Proposals*, 40 U. Cin. L. Rev. 511 (1971); Comment, *Oregon's Statutory and Common Law Efforts to Control Air Pollution: An Analysis and Comparison*, 50 Or. L. Rev. 85 (1970); Bruch, *Environmental Pollution Control Laws in Pennsylvania: A Survey and Analysis*, 16 Vill. L. Rev. 815 (1971); Norvell & Bell, *Air Pollution Control in Texas*, 47 Tex. L. Rev. 1086 (1969).

[11] *E.g.*, Sess. Laws of Colo., 1st Sess., Ch. 15 § 1 (1963).

[12] *E.g.*, Laws of Pa., Vol II, No. 787 § 5(c) (1959).

[13] *E.g.*, Laws of N.J., Ch. 212 §§ 14–18 (1954).

[14] *77 Stat. 396* (1963); *42 U.S.C. § 1857d (1971)*.

Once the case was taken to court, even assuming that the agency could make out a good case, enforcement was still not guaranteed because many of the early laws did not provide for injunctive relief but only for relatively minor money penalties.[16]

Under the impact of the Clean Air Act, which requires not only adequate state standards to achieve the federal requirements for ambient air quality but which also requires the state's implementation plan to make appropriate provision for effective supervision and enforcement of the standards,[17] the states have adopted stronger, more readily enforceable air pollution control laws.

An outline of state law requirements and authorizations appears in Table I, *below*.[18] Generally, state air pollution control laws contain a declaration of purpose that stresses the need for control of air pollution to safeguard the public health and welfare.[19] Together with the statement of need, however, there generally may be found a statement that regulation must take into account technical feasibility as well as considerations of the sound economy of the state.[20] The state law's definition sections commonly include a definition of air pollution that defines as air pollution any air contaminants in the atmosphere that are or may be injurious to the public health and welfare.[21] Since agencies have standard setting and rule-making powers, they must determine which contaminants meet that description.[22]

TABLE I—STATE AIR POLLUTION LAWS

TABLE I KEY:

Table I notes the major provisions of the air pollution control laws of the fifty states, Puerto Rico, the Virgin Islands, and the District of Columbia.

x St ate air pollution control law has the provision indicated.

C Civil penalty.

E State environmental or pollution control agency.

F Felony.

H State department of health or agency within department of health.

I Imprisonment/Criminal Penalties.

J State attorney general and/or local district attorneys may bring action.

M Misdemeanor.

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[15] *E.g.*, Laws of N.J., Ch. 212 § 19 (1954).

[16] *E.g.*, Acts of Ga., Vol. I, No. 433 (1967).

[17] *84 Stat. 1680* (1970); *42 U.S.C. § 1857c-5 (1971)*.

[18] *See* Table I—State Air Pollution Laws, *below*.

[19] *See* Table I—State Air Pollution Laws, *below*.

[20] *See* Table I—State Air Pollution Laws, *below*. *E.g.*, *Wyo. Stat. Ann. § 35-11-202(b)(i)(D)* (Supp. 1999).

[21] *See* Table1—State Air Pollution Laws, *below*. *E.g.*, *Fla. Stat. Ann. § 403.031(7)* (Supp. 2001).

[22] *New Jersey Dep't Envtl. Protection v. Alden Leeds, Inc.,153 N.J. 272, 708 A.2d 1161 (1998)* (company that stored dangerous chemicals strictly liable under state's Air Pollution Control Act for airborne releases of pool chemicals resulting from a fire at its storage facility).

P Local air pollution control programs authorized if consistent with state controls; local regulations may not be more stringent than those of the state; state has power to preempt local programs.

S Local requirements may be more stringent.

PENALTIES AND SANCTIONS BY STATE

> ***Note:***
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> p.d.v. means per day of violation.

Alabama—Civil/Criminal Penalties: For knowing violation or knowingly submitting any false information or making a false material statement, a person will be liable up to a fine of $10,000 (max.) and an additional penalty not exceeding $10,000 for each day thereafter during which the violation continues. The person may also be sentenced to hard labor for the county for not more than one year (1 yr.). *See* Ala. Code tit. 22, § 22-28-22 (Supp. 2000).

Alaska— Civil Penalty: Fine not less than five hundred dollars ($500) nor more than one hundred thousand dollars ($100,000) for the initial violation, nor more than five thousand dollars ($5,000) for each day after that on which the violation continues. *See* *Alaska Stat. § 46.03.760* (2000).

Criminal Penalty: For a violation with criminal negligence, a person is guilty of a Class A misdemeanor and upon conviction thereof, shall be punished by fine not more than ten thousand dollars ($10,000) for each separate violation. *See* *Alaska Stat. § 46.03.790* (2000).

Arizona—Civil Penalty: Fine not more than $10,000 p.d.v. *See* *Ariz. Rev. Stat. Ann. § 49-463* (West 2000).

Criminal Penalty: A person who *knowingly* releases into the ambient air any extremely hazardous substance shall be guilty of a Class 2 felony. *See* *Ariz. Rev. Stat. Ann. § 49-464* (West 2000).

Arkansas—Civil Penalty: Fine not exceeding $10,000 p.d.v. *See* *Ark. Code Ann. § 8-4-103(b)(4)* (2000).

Criminal Penalty: For any violation, a person is guilty of a misdemeanor and upon conviction shall be subject to imprisonment for not more than one year (1 yr.) or fine of not more $25,000, or to both such fine and imprisonment. For the purpose of fines only, each day or part of a day during which the violation is continued or repeated shall constitute a separate offense. *See* *Ark. Code Ann. § 8-4-103(a)(1)(A)* & *(B)* (Michie 2000).

California—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* *Cal. Health & Safety Code Ann. § 39674(b)(1)* (West 1996).

Criminal Penalty: For negligent violation, a person is guilty of a misdemeanor and subject to a fine not more than fifteen thousand dollars ($15,000) or imprisonment for not more than 9 months, or both.

For knowing violation, a person is guilty of a misdemeanor and subject to a fine not more than twenty five thousand dollars ($25,000) or imprisonment for not more than one year (1 yr.), or both.

For willful and intentional violation, a person is guilty of a misdemeanor and subject to a fine not more than fifty thousand dollars ($50,000) or imprisonment for not more than one year (1 yr.), or both. *See* *Cal. Health & Safety Code Ann. § 42400* (West Supp. 2000).

Colorado—Civil Penalty: Fine not more than twenty five thousand dollars ($ 25,000) p.d.v. *See* *Colo. Rev. Stat. Ann. § 25-7-122* (Supp. 2000).

Criminal Penalty: For knowing violation, the person is guilty of a misdemeanor, and upon conviction thereof, may be punished by a fine of not more than twenty five thousand dollars ($ 25,000) p.d.v. Upon a second conviction within two years, the maximum punishment shall be doubled. *See* Colo. Rev. Stat. Ann. § 25-7-122.1 (West Supp. 2000).

Connecticut—Civil Penalty: Fine not more than twenty five thousand dollars ($ 25,000) for each offense. Each violation shall be a separate, distinct offense, and in case of continuing violation, each day of violation shall be deemed to be a separate offense. When two or more persons are responsible for a violation, such persons shall be jointly and severely liable. *See* Conn. Gen. Stat. Ann. § 22a-180(a) (West Supp. 2000).

Criminal Penalty: For knowing violation or violation with criminal negligence, a person shall be fined not more than twenty five thousand dollars ($25,000) p.d.v. or be imprisoned not more than one year (1 yr.), or both. A subsequent conviction shall carry a fine of not more than fifty thousand dollars ($50,000) p.d.v. or imprisonment for not more than two years (2 yrs.), or both. *See* Conn. Gen. Stat. Ann. § 22a-175(a) (West Supp. 2000).

Delaware—Civil Penalty: Fine not less than one thousand dollars ($1,000) nor more than ten thousand dollars ($10,000) p.d.v. If likelihood of reoccurrence exists, there may also be a permanent or preliminary injunction or temporary restraining order. *See* Del. Code Ann. tit. 7, § 6005 (1991).

Criminal Penalty: For a willful or negligent violation, a person shall be fined not less than two thousand five hundred dollars ($2,500) nor more than twenty five thousand dollars ($25,000) p.d.v. *See* Del. Code Ann. tit. 7, § 6013 (Supp. 2000).

District of Columbia—Civil Penalty: Civil fine, penalties, and fees may be imposed pursuant to D.C. Code § 6-2701 *et seq.* (Supp. 2000), for civil infractions.

Florida—Civil Penalty: A person in violation is liable for any damage caused to the air, water or property, including animal, plant or aquatic life, and shall be fined not more than ten thousand dollars ($10,000) per offense. Each day during which any portion of which such violation occurs constitutes a separate offense. *See* Fla. Stat. Ann. § 403.141 (West Supp. 2001).

Criminal Penalty: For a violation due to reckless indifference or gross careless disregard, a person is guilty of a misdemeanor of the second degree punishable by a fine of not more than five thousand dollars ($5,000) or by 60 days in jail or by both for each offense. *See* Fla. Stat. Ann. § 403.161 (West Supp. 2001).

Georgia—Civil Penalty: Fine not more than twenty five thousand dollars ($25,000) p.d.v. *See* Ga. Code Ann. § 12-9-23 (Supp. 2000).

Criminal Penalty: For a knowing violation, a person shall be guilty of a felony and, upon conviction thereof, shall be fined not more than twenty five thousand dollars ($25,000) p.d.v. or by imprisonment for not more than five years (5 yrs.), or both. *See* Ga. Code Ann. § 12-9-24(a) (1996).

Hawaii—Civil Penalty: Fine not more than twenty five thousand dollars ($25,000) p.d.v. *See* Haw. Rev. Stat. Ann. § 342B-47(c) (2000).

Criminal Penalty: For a knowing violation, a person shall be punished by a fine not more twenty five thousand dollars ($25,000) p.d.v. or by imprisonment not to exceed five years (5 yrs.), or by both. *See* Haw. Rev. Stat. Ann. § 342B-49(a) (2000).

Idaho—Criminal Penalty: For a knowing violation, a person is guilty of a misdemeanor, and upon conviction thereof, shall by punished by a fine not more than ten thousand dollars ($10,000) p.d.v. *See* Idaho Code Ann. § 39.117 (Michie 1948–1998).

Illinois—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* *415 Ill. Comp. Stat. 5/42* (West Supp. 2000).

Criminal Penalty: For a violation, a person is guilty of a Class A Misdemeanor. *See* *415 Ill. Comp. Stat. 5/44* (West 2000).

Indiana—Civil Penalty: Fine not more than twenty five thousand dollars ($25,000) p.d.v. *See* Ind. Stat. Ann. § 13-30-4-1 (Supp. 2000).

Criminal Penalty: For intentional, knowing or reckless violation, a person commits a Class D felony punishable by a fixed term of one and half years (1½ yrs.) imprisonment with not more than one and half years (1½ yrs.) added for aggravating circumstances and not more than one (1 yr.) subtracted for mitigating circumstances. In addition to the above terms of imprisonment, a person here convicted of a Class D felony may be punished by a fine of not less than two thousand five hundred dollars ($2,500) and not more than twenty five thousand dollars ($25,000) p.d.v. For a second violation and conviction, the person is fined not more than fifty thousand dollars ($50,000) p.d.v. *See* Ind. Stat. Ann. §§ 13-30-6-1(a)(b) and 35-50-2-7(a) (Supp. 2000).

Iowa—Civil Penalty: For a violation, a person may be enjoined or be fined not more than ten thousand dollars ($10,000) p.d.v. or be liable to both such injunctive relief and civil penalty. *See* Iowa Code Ann. § 455B-146 (West 1997).

Criminal Penalty: For a knowing violation, a person is guilty of an aggravated misdemeanor punishable by a fine of not more than ten thousand dollars ($10,000) p.d.v. or by imprisonment for not more than two years (2 yrs.), or both. For a second or subsequent conviction, a person will be fined not more than twenty thousand dollars ($20,000) p.d.v or by imprisonment for not more than four years (4 yrs.), or by both. *See* *Iowa Code Ann. § 455B.146A(1)* (West 1997).

Kansas—Civil Penalty: Fine not more than one thousand dollars ($1,000) p.d.v. *See* *Kan. Stat. Ann. § 65-3018* (Supp. 2000).

Criminal Penalty: For a violation, a person is guilty of a Class A nonperson misdemeanor per day of violation. For a knowing violation, a person is guilty of a severity level 10 nonperson felony per day of violation. *See* *Kan. Stat. Ann. § 65-3026* (Supp. 2000).

Kentucky—Civil Penalty: Fine not more than twenty five thousand dollars ($25,000) p.d.v. *See* *Ky. Rev. Stat. Ann. § 224.99-010(1)* (Michie 1995).

Criminal Penalty: For a knowing violation, a person shall be guilty a Class D felony, and upon conviction thereof, shall be punished by a fine not more than twenty five thousand dollars ($25,000) p.d.v. or by imprisonment for not less than one year (1 yr.) and not more than five years (5 yrs.), or by both. *See* Ky. Rev. Stat. Ann. § 244.99-010(4) (Michie 1995).

Louisiana—Civil Penalty: Cost to the state of any response action made necessary by a violation which is not voluntarily paid by the violator and a penalty of not more than twenty seven thousand dollars ($27,000) p.d.v. For intentional, willful or knowing violation, the violator may be liable for an additional penalty of not more than one million dollars ($1,000,000). *See* La. Rev. Stat. Ann. § 30:2025E(1)(a) (West 2000).

Criminal Penalty: For a willful or knowing discharge, a person is guilty of a felony and shall be fined not more than one million dollars ($1,000,000) or the cost of any cleanup made necessary by the violation and in addition may be fined not more than one million dollars ($1,000,000) p.d.v., and the cost of prosecution, or imprisoned at hard labor not more than ten years (10 yrs.), or both. *See* La. Rev. Stat. Ann. § 30:2025F(1)(a) (Supp. 2001).

Maine—Civil Penalty: Fine not less than one hundred dollars ($100) nor more than ten thousand dollars ($10,000) p.d.v. If the violation relates to hazardous waste, the fine shall not be more than twenty five thousand dollars ($25,000) p.d.v. *See* Me. Rev. Stat. Ann. tit. 38, § 349(2) (West 2001).

Criminal Penalty: For an intentional, knowing, reckless violation or a violation with criminal negligence, a person is guilty of a Class E crime and may be punished accordingly. The fine for such a violation may not be less than two thousand five hundred dollars ($2,500) nor more than twenty five thousand dollars ($25,000) p.d.v except that the minimum amount for knowing violation is five thousand dollars ($5,000) p.d.v. *See* Me. Rev. Stat. Ann. tit. 38, § 349(1) (West 2001).

Maryland—Civil Penalty: Fine not exceeding twenty five thousand dollars ($25,000) p.d.v. *See* Md. Ann. Code § 2-610(a) (1996).

Criminal Penalty: For a violation, a person is guilty of a misdemeanor and on conviction is subject to a fine not exceeding twenty five thousand dollars ($25,000) p.d.v. or imprisonment not exceeding one year (1 yr.), or both.

For a subsequent conviction, a person is subject to a fine not exceeding fifty thousand dollars ($50,000) p.d.v. or imprisonment not exceeding two years (2 yrs.), or both. *See* Md. Ann. Code § 2-609(2) (1996).

Massachusetts—Civil Penalty: Fine not exceeding twenty five thousand dollars ($25,000) p.d.v. *See* Mass. Ann. Laws ch. 111, § 142A(b) (Law Coop. Supp. 2001).

Criminal Penalty: For a violation, a municipality, corporation or person is guilty of a misdemeanor and upon conviction shall be punished by a fine of not more than twenty five thousand dollars ($25,000) or imprisonment for not more than one year (1 yr.), or both. *See* Mass. Ann. Laws ch. 111, § 142A(a) (Law Coop Supp. 2001).

Michigan—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. Additionally, the Attorney General may, at the request of the department, file an action to recover the full value of the injuries done to the natural resources of the state. *See* Mich. Comp. Laws Ann. § 324.5530 (West 1999).

Criminal Penalty: For a knowing violation, a person is guilty of a misdemeanor, punishable by a fine of not more than ten thousand dollars ($10,000) p.d.v. and imprisonment for not more than one year (1 yr.). *See* Mich. Comp. Laws Ann. § 324.5531 (West 1999).

Minnesota—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. Additionally, the defendant will adequately compensate the state for cleanup costs, loss of wildlife, fish or other aquatic life. *See* Minn. Stat. Ann. § 115.07(3) (West Supp. 2001).

Criminal Penalty: For willful or negligent violation, a person shall, upon conviction, be punished by a fine not more than twenty five thousand dollars ($25,000) p.d.v. or by imprisonment not more than one year (1 yr.), or both. *See* Minn. Stat. Ann. § 115.07(2a) (West Supp. 2001).

Mississippi—Civil Penalty: Fine not more than twenty five thousand dollars ($25,000) p.d.v. *See* Miss. Code Ann. § 49-17-43 (Supp. 2000).

Criminal Penalty: For a knowing violation, a person shall, upon conviction, be punished by a fine of not less than two thousand five hundred dollars ($2,500) nor more than twenty five thousand dollars ($25,000) p.d.v. *See* Miss. Code Ann. § 49-17-36 (Supp. 2000).

Missouri—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* Mo. Ann. Stat. § 643.151 (West 2000).

Criminal Penalty: For a knowing violation, a person shall, upon conviction, be punished by a fine of not more than ten thousand dollars ($10,000) p.d.v. *See* Mo. Ann. Stat. § 643.191 (West 2000).

Montana—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* Mont. Code Ann. § 75-2-413 (1997).

Criminal Penalty: For a knowing violation, a person shall be guilty of a misdemeanor and shall, upon conviction thereof, be punished by a fine not more than ten thousand dollars ($10,000) or imprisonment for not more than two years (2 yrs.), or both. *See* Mont. Code Ann. § 75-2-412 (1997).

Nebraska—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* Neb. Rev. Stat. § 81-1508.02(2) (1999).

Criminal Penalty: For a knowing or willful violation, a person shall be guilty of Class IV felony. *See* Neb. Rev. Stat. § 81-1508.01(1) (1999).

Nevada—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* Nev. Rev. Stat. § 445B.640(1) (Supp. 2000).

Criminal Penalty: For a knowing violation, a person shall be punished by a fine not less than ten thousand dollars ($10,000) p.d.v. *See* Nev. Rev. Stat. § 445B.470 (Supp. 2000).

New Hampshire—Civil Penalty: Fine not more than twenty five thousand dollars ($25,000) p.d.v. *See* N.H. Rev. Stat. Ann. § 125-C:15(II) (Supp. 2000).

Criminal Penalty: For any violation, a natural person shall be guilty of a misdemeanor and any other person shall be guilty of felony. *See* N.H. Rev. Stat. Ann. § 125-C:15(III) (Supp. 2000).

New Jersey—Civil Penalty: Fine not more than ten thousand dollars ($10,000) for the first offense, not more than twenty five thousand dollars ($25,000) for the second offense, and not more than fifty thousand dollars ($50,000) for each subsequent offense. If the violation is of a continuous nature, each day during which it continues shall constitute an additional, separate and distinct offense. *See* N.J. Stat. Ann. § 26-2C-19(b) (Supp. 2000).

Criminal Penalty: For purposeful and knowing violation, a person shall be guilty of a crime of the third degree and shall be subject to a sentence, which may include, notwithstanding the civil penalty, an enhanced fine of ten thousand dollars ($10,000) p.d.v. *See* N.J. Stat. Ann. § 26-2C-19(f) (Supp. 2000).

New Mexico—Civil Penalty: Fine not more than fifteen thousand dollars ($15,000) p.d.v. *See* N.M. Stat. Ann. § 74-2-12.1 (Supp. 1999).

Criminal Penalty: For knowing violation, a person shall be guilty of a fourth degree felony and shall, upon conviction, be punished by a fine not more than ten thousand dollars ($10,000) p.d.v. or by imprisonment for not more than eighteen months (18 months), or both. *See* N. M. Stat. Ann. § 74-2-14 (Supp. 1999).

New York—Civil Penalty: Fine not less than two hundred and fifty dollars ($250) nor more than ten thousand dollars ($10,000) for first offense, and an additional penalty of not more than ten thousand dollars ($10,000) for each day during which such violation continues. In case of a second or any further violation, the person shall be liable to a fine not more than fifteen thousand dollars ($15,000) p.d.v. *See* N.Y. Envtl. Conserv. Law § 71-2103 (McKinney Supp. 2001).

Criminal Penalty: For a willful violation, a person shall be guilty of a misdemeanor and upon conviction thereof, shall be punished by a fine of not less than two hundred and fifty dollars ($250) nor more than ten thousand dollars ($10,000) or by imprisonment for not more than one year (1 yr.), or both. For a second

offense, the person shall be punished by a fine not more than fifteen thousand dollars ($15,000) p.d.v. or imprisonment or both. *See* N.Y. Envtl. Conserv. Law § 71-2105 (McKinney Supp. 2001).

North Carolina—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* N.C. Gen. Stat. § 143-215.6A (1999).

Criminal Penalty: For negligent violation, a person shall be guilty of a Class 2 misdemeanor, which may include a fine not more than fifteen thousand dollars ($15,000) p.d.v., provided than such a fine may not exceed a cumulative total of two hundred thousand dollars ($200,000) for each period of 30 days during which a violation continues.

For knowing violation, a person shall be guilty of a Class C felony, which may include a fine not more than two hundred and fifty thousand dollars ($250,000) p.d.v., provided that this fine shall not exceed a cumulative total of one million dollars ($1,000,000) for each period of 30 days during which a violation continues. *See* N.C. Gen. Stat. § 143-215.6B (1999).

North Dakota—Penalties: For a willful violation, a person shall be subject to a fine not more than ten thousand dollars ($10,000) p.d.v. or by imprisonment for not more than one year (1 yr.), or both. For a second offense, a person shall be subject to a fine not more twenty thousand dollars ($20,000) p.d.v. or by imprisonment for not more than two years (2 yr.), or both. *See* N.D. Cent. Code Ann. § 23-25-10 (Supp. 1999).

Ohio—Penalties: For a reckless violation, a person, on conviction, shall be fined not more than twenty five thousand dollars ($25,000) p.d.v. or imprisonment not more than one year (1 yr.) or both. *See* Ohio Rev. Code Ann. § 3704.99 (Supp. 2000).

Oklahoma—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* Okla. Stat. Ann. tit. 27A, § 2-5-117 (Supp. 2001).

Criminal Penalty: For a knowing and willful violation, a person shall be guilty of a misdemeanor and upon conviction, shall be punished by a fine not more than twenty five thousand ($25,000) p.d.v. or imprisonment for not more than one year (1 yr.), or both. *See* Okla. Stat. Ann. tit. 27A, § 2-5-116 (Supp. 2001).

Oregon—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* Or. Rev. Stat. Ann. § 468A.130 (Supp. 1998).

Criminal Penalty: Violation constitutes a Class A misdemeanor. Each day of violation constitutes a separate offense. *See* Or. Rev. Stat. Ann. § 468A.990 (Supp. 1998).

Pennsylvania—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. for each violation that occurs in the first three years following the enactment of this section, fifteen thousand dollars ($15,000) p.d.v. for each violation that occurs in the fourth year, and twenty five thousand dollars ($25,000) for each violation that occurs in the fifth year and all subsequent years following the enactment of this section. *See* Pa. Cons. Stat. Ann. tit. 35, § 4009.1 (West Supp. 2001).

Criminal Penalty: For a violation, a person shall, on conviction, be sentenced to pay a fine of not less than one hundred dollars ($100) nor more than two thousand five hundred dollars ($2,500) p.d.v. or imprisonment for ninety days (90 days) for each separate offense.

For willful or negligent violation, a person commits a misdemeanor of the second degree and upon conviction, shall be sentenced to pay a fine of not less than one thousand dollars ($1,000) nor more than fifty thousand dollars ($50,000) p.d.v. or imprisonment for not more than two years (2 yrs.) for each separate offense, or both. *See* Pa. Cons. Stat. Ann. tit. 35, § 4009 (West 1993).

Puerto Rico—Penalties: For any violation, a person shall be guilty of a misdemeanor and upon conviction, shall be punished with a fine of up to one thousand dollars ($1,000) p.d.v. For voluntary or malicious

violation, a person shall be guilty of a misdemeanor and upon conviction shall punished with a fine of up to five hundred dollars ($500). *See P.R. Laws Ann. tit. 24, § 341o* (1999).

Rhode Island—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* R.I. Gen. Laws § 23-23-14(a) (1996).

Criminal Penalty: For a violation, a person shall be punished by a fine not more than ten thousand dollars ($10,000) p.d.v. or by imprisonment for one year (1 yr.), or both. *See* R.I. Gen. Laws § 23-23-14(d) (Supp. 2000).

South Carolina—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* S.C. Code Ann. § 48-1-330 (Supp. 2000).

Criminal Penalty: For willful or negligent violation, a person shall be deemed guilty of a misdemeanor and upon conviction shall be punished by a fine not less than five hundred dollars ($500) nor more than twenty five thousand dollars ($25,000) p.d.v. or by imprisonment for not more than two years (2 yrs.), or both. *See* S.C. Code Ann. § 48-1-320 (Supp. 2000).

South Dakota—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. or liable for damage to the environment of the state, or both. *See* S.D. Codified Laws § 34A-1-39 (Michie 1999).

Tennessee—Civil Penalty: Fine up to twenty five thousand dollars ($25,000) p.d.v. *See* Tenn. Code Ann. § 68-201-116(b) (1996).

Criminal Penalty: For knowing violation, a person commits a Class C misdemeanor with the fine not to exceed ten thousand dollars ($10,000) p.d.v. *See* Tenn. Code Ann. § 68-201-112 (Vernon 2001).

Texas—Civil Penalty: Fine not less than fifty dollars ($50) nor more than twenty five thousand dollars ($25,000) p.d.v. *See* Tex. Code Ann. Health & Safety § 382.085 (Vernon 2001).

Criminal Penalty: For intentional and knowing violation, a person shall be punished by a fine not less than one thousand dollars ($1,000) nor more than fifty thousand dollars ($50,000) or imprisonment for not more than 180 days, or both. For a corporation or association, by a fine not less than one thousand dollars ($1,000) nor more than one hundred thousand dollars ($100,000). *See* Tex. Code Ann. Health & Safety § 382.092 (Supp. 2001).

Utah—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* Utah Code Ann. § 19-2-115(2) (1998).

Criminal Penalty: For a knowing violation, a person is guilty of a Class A misdemeanor and is subject to imprisonment for a term not exceeding one year (1 yr.) and a fine of not more than twenty five thousand dollars ($25,000) p.d.v. *See* Utah Code Ann. § 19-2-115(3) (1998).

Vermont—Penalties: For knowing violation, a person shall be fined not more than one hundred thousand dollars ($100,000) p.d.v., or by imprisonment not more than five (5 yrs.), or both. *See* Vt. Stat. Ann. tit. 10, § 568 (1998).

Virgin Islands—Civil Penalty: Fine up to fifty thousand dollars ($50,000) p.d.v. *See* V.I. Code Ann. tit. 12, § 215(a)(b) (Supp. 2001).

Criminal Penalty: For a knowing violation, a person shall, upon conviction, be punished by a fine not more than ten thousand dollars ($10,000) p.d.v. or imprisonment for not more than one year (1 yr.), or both. For subsequent convictions, the maximum punishment shall be doubled with respect to both fine and imprisonment. *See* V.I. Code Ann. tit. 12, § 215(c) (1998).

Virginia—Civil Penalty: Fine not more than twenty five thousand dollars ($25,000) p.d.v. *See* Va. Code Ann. § 10.1-1316 (Michie 1998).

Criminal Penalty: For a knowing violation, a person shall, upon conviction, be guilty of a misdemeanor and shall be subject to a fine not more than ten thousand dollars ($10,000) p.d.v. *See* Va. Code Ann. § 10.1-1320 (Michie 1998).

Washington—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* Wash. Rev. Code Ann. § 70.94.431(1) (West Supp. 2001).

Criminal Penalty: For knowing violation, a person shall be guilty of a crime and upon conviction thereof, shall be punished by a fine not ten thousand dollars ($10,000) or by imprisonment for not more than one year (1 yr.) or by both for each separate violation. *See* Wash. Rev. Code Ann. § 70.94.430(1) (West 1992).

West Virginia—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. *See* W. Va. Code Ann. § 22-5-6(a) (Michie Supp. 2000).

Criminal Penalty: For a knowing violation, a person shall be guilty of a misdemeanor and upon conviction thereof, shall be fined not more than twenty five thousand dollars ($25,000) or imprisonment for not more than six months (6 months) or both. *See* W. Va. Code Ann. § 22-5-6(b) (Supp. 2000).

Wisconsin—Civil Penalty: Fine not less than ten dollars ($10) nor more than twenty five thousand dollars ($25,000) p.d.v. *See* Wis. Stat. Ann. § 285.87(1) (West 1999).

Criminal Penalty: For intentional violation, a person, on conviction, shall be fined not more than twenty five thousand dollars ($25,000) p.d.v. or imprisonment for not more than six months, or both. For a second conviction, a person shall be fined not more than fifty thousand dollars ($50,000) p.d.v. or imprisonment for not more than two years (2 yrs.), or both. *See* Wis. Stat. Ann. § 285.87(2) (West 1999).

Wyoming—Civil Penalty: Fine not more than ten thousand dollars ($10,000) p.d.v. or a temporary or permanent injunction, or both. *See* Wyo. Stat. Ann. § 35-11-901(a) (1994).

Criminal Penalty: For a willful or knowing violation, a person shall, upon conviction, be fined not more than twenty five thousand dollars ($25,000) p.d.v. or imprisonment for not more than one year (1 yr.), or both. For a subsequent conviction, the person shall be subject to a fine not more than fifty thousand dollars ($50,000) p.d.v. or imprisonment for not more than two years (2 yrs.), or both. *See* Wyo. Stat. Ann. § 35-11-901(j) (1994).

A variety of agencies in the several states enforce air pollution controls. In a number of states, separate agencies have been created to deal with air pollution.[23] In a number of other states, air pollution control is the business of the state health department,[24] and in a small, though increasing number of states, air pollution is the function of a more general environmental control agency, be it an agency charged with environmental control generally[25] or an agency charged with the control of air and water pollution.[26]

Air pollution control agencies generally have rather broad grants of powers. In about half of the states, the state agency itself is the primary operative agency authorized and required to carry on pollution control activities from day to day.[27] In about one third of the states, however, the state agency appears to have original jurisdiction

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[23] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Tenn. Code Ann. § 68-201-104 (Supp. 2000).

[24] *E.g.*, N. D. Cent. Code Ann. § 23-25-02 (Supp. 1999).

[25] *E.g.*, Alaska Stat. § 46.14.010 et seq. (Michie 2000).

[26] *E.g.*, Miss. Code Ann. § 49-17-1 (Supp. 2000).

only over some specified sources, permits and violations, and is otherwise primarily supervisory and standard setting, leaving routine enforcement activities to municipal and other local authorities subject to state supervision in varying degrees.[28]

The powers of air pollution control agencies are generally the broad powers granted to administrative agencies charged with both rule-making and standard-setting and enforcement functions. These include the adoption of rules and regulations, usually following appropriate hearings, the conduct of hearings, the conduct of studies, the collection and dissemination of information, the carrying out of appropriate inspections, the carrying out of emergency procedures in the event of occurrence of air pollution hazards, the power to monitor air pollution, including the requirement of submission of records and reports, the power to appear and participate in state or federal regulatory hearings, the entry into contracts including contracts to secure facilities relating to state work, and the power to consult with and advise interested parties, especially state and local agencies, with regard to air pollution problems.[29]

As part of their regulatory powers, states generally have the right to issue emission standards,[30] and some states specify that the agency may issue emission standards with regard to combustion processes and manufacturing processes.[31] Other laws provide broad, unrestricted grants to issue such standards.[32] A few states expressly authorize the agency to issue fuel control regulations.[33] Most state laws, indeed, contain very few emission standards in the law itself, nor do they contain extended regulatory standards of other kinds. Most of the state laws are broadly enabling, and the precise mode of a state's regulation of air pollution cannot be surmised from the law itself without recourse to the more detailed regulations issued by the state regulatory agency.[34] In view of the fact that the scope of the regulations is defined by law, the state laws, however, do provide a reliable clue as to the depth and intensity of the state's regulatory effort in the air pollution field. Moreover, the states generally allow broad latitude to municipal and local enforcement efforts.[35] With few

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[27] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Fla. Stat. Ann. § 403.061 (West Supp. 2001).

[28] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Ariz. Rev. Stat. Ann. § 49-402 (2000).

[29] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Ariz. Stat. Ann. § 49-456 (2000).

[30] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Ariz. Stat. Ann. § 49-424 (2000).

[31] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, S.D. Codified Laws §§ 34A-1-18 to 34A-1-19 (Michie 1999).

In re Combined Air & Solid Waste Permit No. 2211–91–OT–1, 489 N.W.2d 811, 23 ELR 20384 (Minn. Ct. App. 1992) concerned the denial of an incinerator construction permit by the Minnesota Pollution Control Agency (MPCA). The MPCA based its denial in part on its finding that although dioxin emissions would be within applicable federal and state standards, there was likely to be pollution, impairment or destruction of natural resources in the State, and that there was a feasible and prudent alternative. The court directed the MPCA to issue the permit, holding that the agency's findings that the proposed incinerator would produce unacceptable pollution was not supported by specific and substantial evidence and that the agency, a regulatory body, could not contradict findings of a legislative council that the incinerator was consistent with state solid waste management goals as established by the state legislature.

See also Matter of University of Minnesota, 566 N.W.2d 98, 105 (Minn. Ct. App. 1997). The court of appeals held that because the proposed facility complied with applicable state and federal emission standards, the Minnesota Pollution Control Agency (MPCA) conclusion that it would not adversely affect the environment did not result from an erroneous application of law.

[32] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Mont. Code Ann. § 75-2-203 (1997); Wyo. Stat. Ann. § 35-11-202 (Michie 1999).

[33] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, 82 Stat. 458 (1968); Colo. Rev. Stat. Ann. § 25-7-109(3)(d) (West Supp. 2000).

[34] *See* Table I—State Air Pollution Laws, *above*.

[35] *See* Table I—State Air Pollution Laws, *above*.

exceptions even the states that focus air pollution control at the state level allow local governments to pass air pollution control regulations and to enforce them.[36] In most instances, there is a requirement that local regulations be consistent with state regulations,[37] but normally this permits local regulations to be more stringent than the state's.[38] There is only one state in which municipalities are expressly prohibited from imposing requirements more stringent than a state's.[39]

State laws generally contain the enforcement and sanctions provisions that will be applied to accomplish the purposes of the law. Since penalties and sanctions are a matter of state legislation and since normally a regulatory agency cannot be granted the power to set sanctions and penalties,[40] the legal provisions limit the scope of the state's enforcement. To delegate the setting of sanctions and remedies to the administrative agency itself would violate the general prohibition on the delegation of legislative power.[41] In every state, air pollution standards are initially enforced by compliance orders of the administrative agency.[42] All states provide for the bringing of court actions to prosecute violators or to enforce agency orders.[43] Some state laws expressly allow either the state authorities or the local authorities to bring appropriate court actions.[44] About one-third of the states still require a conciliation effort with periods of conciliation of varying length before court action can be commenced.[45] A majority of the states by now allow for the issuance of abatement orders—*i.e.*, injunctive orders to enforce air pollution control standards,[46] but all the states also impose monetary and/or other criminal penalties for the enforcement of their laws.[47] States that make no provision for injunctive enforcement will need to amend their law in order to comply with federal implementation plan requirements.

In most states, violation of the air pollution control act or of any regulations or standards issued thereunder is treated as a misdemeanor,[48] though in some states the action is specially designated a civil penalty action.[49] In most jurisdictions, penalties set by law are now high enough to be a reasonable deterrent for air pollution. Some states, however, still impose a penalty of less than $1,000.[50] About one-half of the states set maximum penalties in the $5,000 to $10,000 range, while the other half set maximum penalties above $10,000.[51]

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[36] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Ind. Stat. Ann. §§ 13-17-12-1 to 13-17-12-16 (Michie 2000).

[37] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Ind. Stat. Ann. § 13-17-13-2 (Michie 2000).

[38] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, *N.J. Stat. Ann. § 26:2C-22* (West 1996).

[39] *See* Table I—State Air Pollution Laws, *above*. ***Minn. Stat. Ann. § 116.07(2)*** (West Supp. 2000).

[40] *See generally* Davis, Administrative Law Text Ch. 2 (1972).

[41] Davis, Administrative Law Text Ch. 2, § 2.06 (1972).

[42] *See* Table I—State Air Pollution Laws, *above*.

[43] *See* Table I—State Air Pollution Laws, *above*.

[44] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Tex. Code Ann. Health & Safety § 382.114 (Vernon 2001).

[45] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Mo. Stat. Ann. § 643.080(3) (West 2000).

[46] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, *N.J. Stat. Ann. § 26:2C-19* (West Supp. 2000).

[47] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, *S.C. Code Ann. §§ 48-1-320* and *48-1-330* (Law Coop. Supp. 2000).

[48] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, *Or. Rev. Stat. Ann. § 468A.990* (1992).

[49] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, District of Columbia.

[50] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Kansas, Puerto Rico.

[51] *See* Table I—State Air Pollution Laws, *above*.

A number of states that treat violations as misdemeanors set sentences of imprisonment as well. In most instances, the law provides that each day's violation shall be a separate offense,[52] but this is not usually a very meaningful enhancement of the sanction. In instances where the violation is designated a misdemeanor, i.e., criminal, separate proof of each day's violation must usually be provided before a penalty for that day's violation can be recovered;[53] it is not sufficient generally to prove separate violations some days apart, asserting that the violation was a continuing one. It should be noted, however, that most states now provide additional penalty for willful and reckless violations.[54]

In view of the fact that the bulk of pollution from stationary sources is attributable to utility and heavy industry operations—operations that are likely to be conducted by major corporate interests—the limited range of penalties provided in some state laws, and the absence of stringent injunctive remedies in many of them, does not provide any convincing assurance that state and local enforcement is likely to be a uniformly effective deterrent if it were to rely on existing mandatory sanctions alone. The past failure of the states to strengthen the remedial and sanctions portions of their state laws and to equip themselves with adequate enforcement machinery goes far to explain the emphasis in the Clean Air Amendments of 1970, not only on more stringent means of federal enforcement, but also on the submission by the states of implementation plans that provide for minimally adequate enforcement machinery.[55] Federal regulations require that implementation plans be enforceable by injunction,[56] but no other sanctions are expressly required.[57] It is likely that effective enforcement by states and localities will have to await the full impact of the federal requirements[58] to bring about state enforcement compliance as well as compliance by major polluters.

[2] Enforcement in the State Courts

State air pollution control laws have generally been upheld as a proper exercise of the state's police power.[1] Challenges to the constitutionality of such laws have been infrequent and on the whole unsuccessful. Whenever a state air pollution control law has run into constitutional difficulties, it has been on grounds of unconstitutional application rather than on any unconstitutionality of the law on its face.[2] In general,

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[52] *See* Table I—State Air Pollution Laws, *above*.

[53] *E.g.*, *People v. Detroit Edison Co., 16 Mich. App. 423, 168 N.W.2d 320 (1969)*. *See also Stock v. State of Alaska, 526 P.2d 3, 13–15 (Alaska 1974)* (Department of Environmental Conservation was not required to exhaust the compliance-order procedure before instituting prosecution of the defendant for a pollution violation).

[54] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Pa. Cons. Stat. Ann. tit. 35, § 4009 (West 1993).

[55] Clean Air Act § 110(a)(2)(F), *42 U.S.C. § 7410(a)(2)(F)*.

[56] 40 C.F.R. § 51.11(a).

[57] 40 C.F.R. § 51.11(a): "Each plan shall show that the State has legal authority to carry out the plan including authority to … (2) … seek injunctive relief."

[58] 40 C.F.R. § 51.11(a), at 15486 ff.

[1] *Northwestern Laundry v. Des Moines, 239 U.S. 486, 36 S. Ct. 206, 60 L. Ed. 396 (1916)*; and more recently, *State v. Arizona Mines Supply Co., 107 Ariz. 199, 484 P.2d 619 (1971)*; *Department of Health v. Owens-Corning Fiberglas Corp., 100 N.J. Super. 366, 383-384, 242 A.2d 21, 29-30 (A.D. 1968)*, *aff'd mem.*, *53 N.J. 248, 250 A.2d 11 (1969)*; *Wylie Bros. Contracting Co. v. Albuquerque-Bernalillo County Air Quality Bd., 80 N.M. 633, 459 P.2d 159 (1969)*; *State v. Acme Scrap Iron and Metal, 49 Ohio App. 2d 371, 3 Ohio Op. 3d 444, 361 N.E.2d 250 (1974)*; *Arizona v. Sanner Contracting, 109 Ariz. 522, 514 P.2d 443, 5 E.R.C. 1982 (Ariz. Sup. Ct. 1973)*. *See also Annot., Validity of Regulation of Smoke and Other Air Pollution, 78 A.L.R.2d 1305*.

[2] *E.g.*, *Dept. of Health v. Roselle, 34 N.J. 331, 169 A.2d 153 (1961)*. *See also 78 A.L.R.2d. 1305, 1341* ff. See also *U.S. Mining and Exploration Natural Resources Co. v. City of Beattyville, 548 S.W.2d 833 (Ky. 1977)*, setting aside a municipal ordinance banning coal tipples as unreasonable, and therefore a denial of due process.

classifications made by the state air pollution control laws have been upheld as reasonable whenever, for instance, such laws have distinguished between emission sources of different size or different character.[3] Moreover, such laws have been upheld against challenges on equal protection grounds. Such challenges have been based on the allegation that state laws did not provide for simultaneous regulation of all sources, and it has been held that the state regulatory agency is within its powers under the law to adopt regulations controlling some but not all of the pollution sources, and that the sources so regulated have no cause to complain that other sources of a different character remain as yet unregulated.[4] Challenges based on allegedly unconstitutional delegation of legislative power have also been rejected,[5] except in some instances where the courts have found that legislative guidelines to the agency charged with rulemaking or adjudicatory functions were inadequate.[6]

See also ***Florida Rock Industries, Inc., v. Alachua County, 721 So. 2d 741 (Fla. Dist. Ct. App. 1998)***, where the court held that the fact that Department of Environmental Protection (DEP) had not approved proposed county clean air ordinance, which set stricter air quality standards than those required by state or federal law, was insufficient to show that ordinance was unconstitutional on its face and in its entirety.

But see Clean Air Markets Group v. Pataki, 194 F. Supp. 2d 147, 32 ELR 20553 (N.D.N.Y. 2002). New York State passed an Air Pollution Mitigation Law (APML) in May 2000 imposing a penalty on trading emission allowances with upwind states because such emissions are a substantial source of acid deposition in New York. The problem had previously been addressed in the 1990 amendments to the Clean Air Act (CAA). Plaintiff group argued that the APML was preempted by the federal CAA to the extent that the New York State law came into conflict with federal law. Plaintiff also argued that the New York law restricted plaintiff's rights and ability to trade allowances with other units at a market price. The law thus tended to regulate interstate commerce. Defendant's response argued against preemption, asserting that the APML was not preempted by CAA, but fell within the police power of the state. The court held that although additional restriction of emissions by the state is permissible under the CAA, the restriction here imposed by the APML amounted to one state's control of another state's emissions. It thus constituted an indirect regulation of allowance trading in another state and violated the Commerce Clause of the U.S. Constitution. The court granted plaintiff's cross motion for summary judgment, and ruled the APML null and void and enjoined its enforcement.

[3] *E.g.*, Ballentine v. Nester, 350 Mo. 58, 164 S.W.2d 378 (1942); Wylie Bros. Contracting Co. v. Albuquerque-Bernalillo County Air Quality Bd., 80 N.M. 633, 459 P.2d 159 (1969); Oriental Blvd. Co. v. Heller, 27 N.Y.2d 212, 316 N.Y.S.2d 226, 265 N.E.2d 72 (1970), *appeal dismissed*, ***401 U.S. 986, 91 S. Ct. 1234, 28 L. Ed. 2d 527 (1971)***.

[4] Ballentine v. Nester, 350 Mo. 58, 71–73, 164 S.W.2d 378, 382–384 (1942); Wylie Bros. Contracting Co. v. Albuquerque-Bernalillo County Air Quality Bd., 80 N.M. 633, 644, 459 P.2d 159, 170 (1969); Oriental Blvd. Co. v. Heller, 27 N.Y.2d 212, 219, 316 N.Y.S.2d 226, 265 N.E.2d 72, 74–75 (1970), *appeal dismissed*, ***401 U.S. 986, 91 S. Ct. 1234, 28 L. Ed. 2d 527 (1971)***.

[5] *E.g.*, Fry Roofing Co. v. Air Pollution Variance Board, 179 Colo. 223, 499 P.2d 1176, 4 E.R.C. 1517 (Colo. 1972) (delegation of authority to grant variances pursuant to statutory standard of procedure upheld); Southern Illinois Asphalt v. EPA, 15 Ill. App. 3d 66, 303 N.E.2d 606, 5 E.R.C. 1929 (Ill. App. Ct. 1973) (attack on construction permit requirement subject to legislative standards upheld).

See also ***State v. Avatar Development Corp., 697 So. 2d 561 (Fla. Dist. Ct. App. 1997)*** (statute making it a misdemeanor in the first degree for person to violate or fail to comply with permit issued by Department of Environmental Protection (DEP) did not violate section of the state constitution prohibiting delegation of legislative authority to administrative agencies); Avatar Dev. Corp. v. State, 723 So. 2d 199, 48 ERC 1295 (Fla. 1998) (statute making it unlawful to violate permit conditions promulgated by Department of Environmental Protection involved a constitutionally valid delegation of legislative authority to the administrative agency).

[6] Southern Illinois Asphalt v. EPA, 15 Ill. App. 3d 66, 303 N.E.2d 606, 5 E.R.C. 1929 (Ill. App. Ct. 1973) (grant of discretionary power to impose variable money penalties an improper delegation of legislative power).

The Florida Supreme Court has consistently reaffirmed the need for specific standards and guidelines in legislation to validate a delegation of legislative authority to an agency. *See* Avatar Dev. Corp. v. State, 723 So. 2d 199, 202, 48 ERC 1295 (Fla. 1998), where the court noted that under the non-delegation doctrine, fundamental and primary policy decisions shall be made by members of the legislature who are elected to perform those tasks, and administration of legislative programs must be pursuant

In view of the clear reliance of federal law on the enactment of state laws to provide for appropriate emission standards and their implementation, no significant issues relating to federal preemption have been raised.[7] The only area in which the federal law is clearly preemptive is that of emission standards for new motor vehicles,[8] and that issue has not given rise to any special difficulties.[9] There is nothing in federal law that prevents the

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to some *minimal standards and guidelines ascertainable by reference to the enactment establishing the program.* The court reasoned that only "when legislation is so lacking in guidelines that neither the agency nor the courts can determine whether the agency is carrying out the intent of the legislature in its conduct, then, in fact, the agency becomes the lawgiver rather than the administrator of the law."

[7] *E.g.*, Consolidated Coal Co. v. Kandle, 105 N.J. Super. 104, 126, 251 A.2d 295, 307 (App. Div. 1969); Houston Compressed Steel Corp. v. State, 456 S.W.2d 768, 772 (Tex. Civ. App. 1970). *See also* Rathwell, *Air Pollution, Pre-emption, Local Problems and the Constitution—Some Pigeonholes and Hatracks*, 10 Ariz. L. Rev. 97 (1968).

See also Clean Air Markets Group v. Pataki, 194 F. Supp. 2d 147, 32 ELR 20553 (N.D.N.Y. 2002), where the plaintiffs, Clean Air Markets Group, brought an action against the Governor of New York and the Public Service Commission (PSC) challenging the constitutionality of New York's Air Pollution Mitigation Law. Plaintiffs demonstrated that they had standing as one of their members had suffered injury in fact, and the court, therefore, dismissed defendants' jurisdictional challenge. The litigation originated from the provisions of the New York law that impose an offset penalty on energy production units that trade in SO_2, which may be directly or indirectly used in an upwind state under § 66-k of the state air pollution law. The offset penalty assessed by the PSC would be used for research and development. However, no penalty would be imposed if the SO_2 were sold with a restrictive covenant not to sell to upwind states. The objective of the clause was to reduce acid depositions in some of the upwind areas. Consequently, the value of SO_2 allowances under the CAA in New York State was about 2.5 to 5% less than in other states. Plaintiffs challenged the legislation on the ground that it violated the CAA Title IV provision that allows free trade in SO_2 emissions and even provides a banking system to use excess quotas in the future. Plaintiffs argued that the federal law preempted the state law. The court upheld the plaintiffs' argument and dismissed the defendants' argument that there was no express preemption and that the law was a valid exercise of the state police power. The court held that EPA had specifically rejected geographic limitations on transfer of SO_2 allowances. The state regulation would increase the availability of allowances in New York and, therefore, indirectly influence emissions trading in the other states. The court further held that the § 66-k restrictions violated the *Commerce Clause* because they discriminated against articles in commerce and restricted the trade in emissions with upwind states. The court also observed that in-state units had the burden of bearing the entire compliance costs either by forgoing unrestricted allowance transfers or by selling restricted allowances at a reduced value. Because the New York law did not penalize in-state transfers, the court held that it was protectionist. Finally, the court observed that there was no direct connection between the state law and its objective of reducing acid deposition to protect public health and environment. Therefore, the court invalidated the law and enjoined its enforcement.

See also People ex rel. Hartigan v. Kerr McGee Chemical Corp. 210 Ill. App. 3d 115, 154 Ill. Dec. 700, 568 N.E. 2d 921 (Ill. App. Ct. 1991) (state's effort to oversee water and air pollution threats at site where facility for storage of nuclear waste was under construction was not preempted by federal law).

[8] Clean Air Act § 209(a), *42 U.S.C. § 7543*.

See People ex rel. State Air Resources Board v. W. Imshurst, 68 Cal. App. 4th 1332, 81 Cal. Rptr. 2d 221 (Cal. Ct. App. 1999) (California definition of a new motor vehicle, for purposes of regulation of emission standards, was not incompatible with the federal definition contained in the Clean Air Act and, therefore, was not preempted).

See also ***Missouri Hospital Ass'n v. Air Conservation Comm'n, 874 S.W.2d 380 (Mo. Ct. App. 1994)***. The court stated that the General Assembly intended federal law to preempt Air Conservation Commission rule-making authority as to areas covered by federal Clean Air Act. If Congress has spoken on a particular issue in the federal Clean Air Act, the Commission is prohibited from adopting rules and regulations on that issue that are either stricter than federal law or enforceable sooner.

See also In re Office of Attorney General of State of New York, 269 A.D.2d 1, 709 N.Y.S.2d 1 (N.Y. App. Div. 2000). The court found that the Clean Air Act's insistence on uniformity in vehicle design preempted state regulation and enforcement of emissions from motor vehicles. It rejected the state's argument that preemption was limited to the quantity of emissions, noting the broad wording of CAA § 209(a), *42 U.S.C. § 7543(a)*, "no state … shall adopt or attempt to enforce any standard relating to the control of emissions from any new motor vehicles or their engines … ."

state from adopting more stringent requirements,[10] though states are generally not very likely to do so. A state law that requires a lesser degree of compliance than the federal law would clearly run into *supremacy clause* problems and could be invalidated.[11]

As previously pointed out, many state laws authorize or permit local regulations of air pollution in varying degrees. The usual requirement is that local laws must be at least as stringent as the state law requirements—and, indeed, this is the requirement of the federal regulations pertaining to state delegation to localities of the power to carry out the implementation plan. There have been some occasional instances when a local law has been invalidated because it was stricter than the state standards.[12] It has been held, however, in at least one case, that a defendant who was convicted of violating a local air pollution ordinance could not have the conviction set aside because the local ordinance was less stringent than the state law required.[13] Local ordinances in the area of air pollution control—as is generally the case with health and safety ordinances—constitute an exercise of powers delegated by the state. In view of the fact that the federal law presently exacts a relatively high level of performance from the *states*, it will increasingly become the state's obligation to see that municipal governments comply with state standards in order that the state may appropriately live up to its approved implementation plan.[14]

Prior to the enactment of the 1970 Clean Air Amendments, all enforcement activities of a judicial nature had been on the state level. Indeed, only a single court action had been brought by the federal government under the earlier provisions of the Clean Air Act, following the very complex conference procedure. Hence, though there had been but a single federal enforcement action prior to 1970, there had been many state prosecutions and other enforcement actions.[15]

The state courts have dealt in a variety of ways with their own air pollution control statutes. When state laws were rather limited in scope and provided for lengthy conciliation proceedings—parallel to the federal conference procedures[16]—the courts frequently reflected this narrowness in approach in their own narrow treatment of air pollution prosecutions. A number of rather narrow technical holdings may be encountered in which state courts have interpreted the language of state law in a very limited, restrictive fashion, and have

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[9] *E.g.*, *Wylie Bros. Contracting Co. v. Albuquerque-Bernalillo County Air Quality Bd., 80 N.M. 633, 644, 459 P.2d 159, 170 (1969)*. *See also* N. 8, *above*.

[10] Clean Air Act § 209(b), *42 U.S.C. § 1857f-6a(b) (1971)*.

See also ***Missouri Hospital Ass'n v. Air Conservation Comm'n, 874 S.W.2d 380 (Mo. Ct. App. 1994)*** (under federal law, Missouri remains free to regulate incinerators so long as these regulations are at least as stringent as any federal counterpart); *Middlesex County Health Department v. Middlesex County Utilities Auth., 260 N.J. Super. 588, 617 A.2d 300 (N.J. Super. Ct. Law Div. 1992)* (the federal Clean Air Act preempted local air pollution ordinance that was less stringent than the Act).

[11] *Middlesex County Health Dep't v. Middlesex County Utilities Auth., 260 N.J. Super. 588, 617 A.2d 300 (N.J. Super. Ct. Law Div. 1992)*.

[12] *See Borough of Verona v. Shalit, 92 N.J. Super. 65, 222 A.2d 145 (Super. Ct. 1966)*, *aff'd on other grounds*, *96 N.J. Super. 20, 232 A.2d 431 (App. Div. 1967)*. *See also Imperial Realty v. City Rent Agency, 4 E.R.C. 1639 (N.Y. Sup. Ct. 1972)*, in which a New York Supreme Court refused to enforce regulations requiring rent reductions for buildings violating the city's clean air standards, when the standards were more stringent than those enforced by state law.

[13] *Oriental Blvd. Co. v. Heller, 58 Misc. 2d 920, 297 N.Y.S.2d 431 (Sup. Ct. 1969)*, *aff'd*, *27 N.Y.2d 212, 316 N.Y.S.2d 226, 265 N.E.2d 72 (1970)*.

[14] *84 Stat. 1680* (1970); *42 U.S.C. § 7410*.

[15] *United States v. Bishop Processing Co., 287 F. Supp. 624 (D. Md. 1968)*, *aff'd*, *423 F.2d 469 (4th Cir. 1970)*, *cert. denied*, ***398 U.S. 904, 90 S. Ct. 1695, 26 L. Ed. 2d 63 (1970)***.

[16] *77 Stat. 396* (1963); *42 U.S.C. § 7415* prior to amendment in 1977.

found both state standards and administrative orders based on such state standards to be unreasonably vague.[17] In holding air pollution provisions void for vagueness and invalidating regulatory provisions or administrative orders as contrary to due process, courts imposed a heavy burden of specificity on administrative agencies, both in setting emission standards and in the issuance of compliance orders.[18]

It is generally true, however, that the strengthening of sanctions in state law and the broader scope of state air pollution control legislation have contributed to a more enforcement-oriented attitude on the part of the courts. The changed judicial attitude to air pollution enforcement litigation is due not only to greater enforcement orientation in the state statute itself, but may also be due in major part to the judicial acceptance of the idea that air pollution is a real threat to health.[19] In this respect, judicial attitudes probably reflect not only a change in the legislation but also the general attitude of the community as a whole.

Although judicial attitudes may be more enforcement oriented than they had been initially, a state air pollution control officer, be he a commissioner of public health or the director of an air pollution control agency, must nonetheless follow the precise terms of the air pollution control statute, whether the enforcement action is in the nature of a criminal prosecution, an action for civil penalties or for an injunctive abatement order.[20] When the law provides for enforcement both by administrative abatement orders and by prosecution in the criminal courts, the administrator has a choice of how to proceed. Where the statute does not require him to give notice and issue abatement orders before he may proceed to judicial enforcement, he may bring an action, including a criminal action, without going through any of the administrative steps.[21] Where the law requires him to give notice to the polluter first and requires him to undertake other administrative steps before litigating in the courts, he must follow the provisions of the statute precisely and cannot proceed to prosecute immediately.[22] It has been said in some opinions in states that follow the later pattern—i.e., that require administrative steps before prosecution or lawsuit—that the purpose of the air pollution control law is abatement and correction and that the administrator must first use available administrative methods to secure such abatement or correction and not rely on court sanctions in the first instance.[23] In cases where the statute requires that administrative remedies

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[17] *E.g.*, Dept. of Health v. Roselle, 34 N.J. 331, 169 A.2d 153 (1961).

[18] *E.g.*, Department of Health v. Roselle, 34 N.J. 331, 169 A.2d 153 (1961).

Western Oil & Gas Ass'n v. California State Air Resources Bd., 129 Cal. App. 3d 682, 181 Cal. Rptr. 199, 13 ELR 20447 (1982). Court affirmed trial court ruling overturning *state* ambient air quality standards for sulfate and sulfur dioxide for procedural defects in their adoption. It should be noted that the opinion of the court of appeal in *Western Oil & Gas Ass'n v. California Air Resources Bd.* was vacated by the Supreme Court of California in 1984. *See* Western Oil & Gas Assn. v. Air Resources Bd., 37 Cal. 3d 502, 208 Cal. Rptr. 850, 691 P.2d 606 (1984).

But see Arizona v. Sanner Contracting, 109 Ariz. 522, 514 P.2d 443, 5 E.R.C. 1982 (Ariz. Sup. Ct. 1973).

[19] *E.g.*, State v. Arizona Mines Supply Co., 107 Ariz. 199, 207, 484 P.2d 619, 627 (1971).

[20] *E.g.*, State v. Pascagoula Veneer Co., 227 So. 2d 286 (S. Ct. Miss. 1969). *See also* Walker, *Laws, Regulations and Ordinances in the Air Pollution Field*, 3 Natural Resources Law 74 (1970).

[21] *E.g.*, State v. Arizona Mines Supply, Co., 107 Ariz. 199, 484 P.2d 619 (1971); Shahmoon Industries, Inc. v. Dept. of Health, 93 N.J. Super. 272, 225 A.2d 699 (App. Div. 1966), *cert. denied*, ***49 N.J. 358, 230 A.2d 392 (1967)***. One aspect of enforcement procedure is the question of which state officer has the power to bring the action. In general, the obligation is that of the attorney general. See, *e.g.*, People ex. rel. Scott v. Briceland, 65 Ill.2d 485, 3 Ill. Dec. 739, 359 N.E.2d 149 (1976), invalidating as contrary to the Illinois Constitution a legislative delegation to the environmental protection agency of the right to prosecute offenders. See also ***People v. Long Island Lighting Co., 41 N.Y.2d 1049, 396 N.Y.S.2d 181, 364 N.E.2d 845 (1977)***, holding that the delegation to the attorney general of the authority to prosecute environmental violations was exclusive.

[22] *E.g.*, St. Regis Paper Co. v. State, 237 So. 2d 797 (Fla. Dist. Ct. App. 1970), *modified on other grounds*, 257 So. 2d 253 (Fla. 1971). For a requirement that a state agency give prompt notice of *completed* inspection to a violator, to afford the opportunity of acquiring rebuttal evidence, see Pollution Variance Board v. Western Alfalfa Corp., 191 Colo. 455, 553 P.2d 811 (Colo. 1976). To the same effect, see Lloyd A. Fry Roofing Co. v. Air Pollution Variance Bd., 191 Colo. 463, 553 P.2d 800 (Colo. 1976).

be exhausted by the agency before it may litigate, courts have regarded the completion of the administrative steps as conditions precedent to the bringing of a law suit.[24]

Depending on the particular state law, enforcement actions may be either criminal or civil. Criminal enforcement actions are generally misdemeanor prosecutions,[25] while civil enforcement actions may fall into the category of actions to collect civil penalties or proceedings to secure temporary or permanent injunctions.[26] When the violation of an air pollution standard is treated under law as a criminal offense, the usual provisions of the criminal law and of the applicable penal code regarding the prosecution of misdemeanors will apply.[27] However, similar to other violations of regulatory provisions to protect the public health, safety and welfare, violations of air pollution standards are regarded as "*malum prohibitum*."[28] As such, they are treated as so-called absolute offenses which are actionable without any proof of intent or knowledge. The mere fact that defendant has exceeded the permissible limits on emission is sufficient to charge and convict him of misdemeanor, regardless of his knowledge of the excessiveness of emissions or of his intent to cause them.[29]

In a number of states, the law also provides for intentional or knowing violations of emission standards.[30] In such states the intentional violation may be treated in one of two ways. In some states, more severe criminal penalty is provided for.[31] In other states, where the unintentional or unknowing emission in excess of standards are treated as a civil offense punishable by a civil penalty, the intentional or knowing offense may be treated as a crime.[32] The relative efficacy of criminal sanctions to deal with violations of air pollution standards will be discussed elsewhere.[33]

Many activities that cause air pollution and may violate state emissions standards are operated under state permit from an agency other than the air pollution control agency. Power plants, as well as open dumps or landfill operations are frequent examples. It has been held repeatedly in enforcement actions that the fact that

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[23] St. Regis Paper Co. v. State, 237 So. 2d 797, 800 (Fla. Dist. Ct. App. 1970), *modified on other grounds*, 257 So. 2d 253 (Fla. 1971).

[24] St. Regis Paper Co. v. State, 237 So. 2d 797, 799 (Fla. Dist. Ct. App. 1970), *modified on other grounds*, 257 So. 2d 253 (Fla. 1971).

[25] *See* Table I—State Air Pollution Laws, *above*. *See also* Mix, *The Misdemeanor Approach to Pollution Control*, 10 Ariz. L. Rev. 90 (1968).

[26] *See* Table I—State Air Pollution Laws, *above*. *See also* Mix, *The Misdemeanor Approach to Pollution Control*, 10 Ariz. L. Rev. 90 (1968). *See also* Walker, *Enforcement of Performance Requirements with Injunctive Procedure*, 10 Ariz. L. Rev. 81 (1968).

[27] *E.g.*, State v. Arizona Mines Supply Co., 107 Ariz. 199, 207, 484 P.2d 619, 627 (1971); People v. Tatje, 203 Misc. 949, 951, 121 N.Y.S.2d 147, 149 (City Ct. 1953).

[28] *E.g.*, State v. Arizona Mines Supply Co., 107 Ariz. 199, 207, 484 P.2d 619, 627 (1971); People v. Tatje, 203 Misc. 949, 951, 121 N.Y.S.2d 147, 149 (City Ct. 1953). *See also* § 2.08[1][b] *infra*.

[29] *E.g.*, State v. Arizona Mines Supply Co., 107 Ariz. 199, 207, 484 P.2d 619, 627 (1971); People v. Tatje, 203 Misc. 949, 951, 121 N.Y.S.2d 147, 149 (City Ct. 1953). *See also* William Dickson Co. v. Puget Sound Air Pollution Control Agency, 81 Wn. App. 403, 914 P.2d 750 (Wash. Ct. App. 1996) (Puget Sound Air Pollution Control Agency (PSAPCA) may, within scope of statute prohibiting persons from causing or allowing air pollution, impose strict liability to enforce its regulations pertaining to any asbestos emitted into air); Mix, *The Misdemeanor Approach to Pollution Control*, 10 Ariz. L. Rev. 90, 93-95 (1968).

[30] *See* Table I—State Air Pollution Laws, *above*.

[31] *See* Table I—State Air Pollution Laws, *above*.

[32] *See* Table I—State Air Pollution Laws, *above*.

[33] *See* § 2.08[1][b], *below*.

defendant has a permit to engage in particular activity, however socially useful, does not protect him, and is no defense, in air pollution control enforcement actions.[34]

Early air pollution cases and a substantial number of contemporary cases involve smoke pollution. The recurring standard of emissions for smoke from combustion equipment is set in terms of emissions of a particular density by reference to the "Ringelmann Chart."[35] This chart, a rather primitive tool, consists of a transparent card carried by the air pollution inspector. This card has a number of cross-hatched areas with grids of different densities. The density of the smoke is determined by comparison with the relative density of the grid on the card. The inspector looks through the card while facing the plume of smoke and determines which grid density on the card is of the approximate darkness of the plume. Normally, smoke of a density of "Ringlemann #2" or "Ringelmann #3" may only be emitted for a limited period of time within any 24 hour period. The Ringelmann Chart, in spite of its rather primitive nature and in spite of the fact that it relies on a subjective comparison by the inspector of the density of the grid with the density of the smoke emitted, has generally been accepted as a valid regulatory standard for pollution control.[36] It is indubitably the first air pollution measuring device that has been so accepted and, indeed the acceptance of the Ringelmann Chart was generally hailed as a considerable advance over the prior, even more subjective, standards that prohibited the emission of "dense" smoke which failed to define how dense a plume had to be before it was too dense to be permissible.[37] The reliability and substantiality of Ringelmann Chart evidence has, however, seen significant challenges, particularly in the light of the increased availability of more reliable scientific tests.[38]

Prosecutions and abatement orders for noisome odors, another early category of air pollution enforcement, long suffered from similar uncertainties. It is difficult if not impossible to describe the intensity of a prohibited noisome odor, and the problem of standard setting for odors is quite considerable. The problem is aggravated by the fact that some odors may be regarded as highly annoying and difficult to bear by some, though entirely

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[34] *E.g.*, State v. Arizona Mines Supply Co., 107 Ariz. 199, 206-207, 484 P.2d 619, 626-627 (1971); *but compare* State v. Pascagoula Veneer Co., 227 So. 2d 286, 287 (Miss. 1969).

See also DeEugenio & Sons v. Division of Environmental Quality, 92 N.J.A.R. 2d (EPE) 47, 1992 N.J. AGEN LEXIS 4288 (1992), *aff'd*, No. A-4055-91T2 (N.J. Super. Ct. App. Div. 1993), *cert. denied*, ***134 N.J. 480, 634 A.2d 527 (N.J. 1993)***. Defendant peach farmer secured the necessary permits to burn peach tree trimmings, but due to wind change, the fire was responsible for improper emission of smoke into the atmosphere. The farmer was deemed to have violated N.J.A.C. 7:27-5.2(a) because although the farmer did not act negligently, he did set the fire.

See also People ex rel. Hartigan v. Kerr McGee Chemical Corp., 210 Ill. App. 3d 115, 154 Ill. Dec. 700, 568 N.E.2d 921 (Ill. App. Ct. 1991). The court held that state was not estopped from raising air and water pollution concerns; that evidence established that preliminary activities would create air emissions of lead and particulates and be a source of wastewater, and they were subject to Illinois Environmental Protection Agency (IEPA) regulations.

[35] *E.g.*, Northwestern Laundry, 239 U.S. 486, 36 S. Ct. 206, 60 L. Ed. 396 (1916); Department of Health v. Concrete Specialties, Inc., 112 N.J. Super. 407, 271 A.2d 595, 3 E.R.C. 1344 (App. Div. 1971); *see* Portland v. Lloyd A. Fry Roofing Co., 3 Or. App. 352, 355-358, 472 P.2d 826, 827-829 (1970) and cases there collected; Sittner v. Seattle, 62 Wash. 2d 834, 384 P.2d 859 (1963); State v. Arizona Mines Supply Co., 107 Ariz. 199, 484 P.2d 619 (1971); *see also* 78 A.L.R.2d 1305, 1320 ff.

[36] *See* N. 34, *above*. State v. Lloyd A. Fry Roofing Co., 9 Or. App. 189, 495 P.2d 751 (Or. Ct. App. 1972).

See Arnold W. Reitze, Jr., *The Legislative History of U.S. Air Pollution Control*, 36 Hous. L. Rev. 679, 688 (1999), noting that the Ringelmann Chart has been criticized as inaccurate by the engineering community, but that courts have continued to uphold its use; it has remained an easy and inexpensive way to regulate visible smoke emissions.

[37] *E.g.*, St. Paul v. Haugbro, 93 Minn. 59, 100 N.W. 470 (1904), where the term "dense smoke" was held not to be so indefinite as to be constitutionally void. For a modern view, critical of the adequacy of the Ringelmann Chart, see Henz, *The Ringelmann Number as an Irrebuttable Presumption of Guilt—An Outdated Concept*, 3 Natural Resources Law 232 (1970).

[38] Western Alfalfa v. Air Pollution Variance Board, 3 E.R.C. 1399 (Colo. Dist. Ct. 1971); Portland Cement Association v. Ruckelshaus, 486 F.2d 375, 158 U.S. App. D.C. 308 (D.C. Cir. 1973), discussed § 2.03[1][b][iv], above .

acceptable to other, members of the population. A device only slightly more complicated than the Ringelmann Chart, a so-called Scentometer, has been developed,[39] which also requires the inspector to exercise his subjective judgment whether the odor is still perceptible after a quantity of air containing the odor has been mixed with seven volumes of pure, uncontaminated air. The measuring device in this instance is ultimately the inspector's nose, just as in the case of the Ringelmann Chart the measuring device is ultimately the inspector's vision. It is perhaps noteworthy that to date the many sophisticated air pollution measuring and monitoring devices, developed and perfected to a high degree of accuracy in recent years, have not as yet been challenged by litigation and their use has not as yet been challenged by litigation and their use has not as yet been accepted judicially. It is certain that scientifically sound and technically validated measuring devices and monitoring techniques will have little difficulty in gaining acceptance in the courts, in view of the fact that far more subjective devices, such as the Ringelmann Chart, have found such acceptance, largely because there was nothing more accurate to use. A question which cannot be answered at this time is whether the courts will continue to accept Ringelmann Chart evidence and Scentometer evidence when more accurate and less subjective evidence may become available through the use of more sophisticated measuring devices and through the application of a more developed technology.[40]

In the past, testimony in air pollution enforcement cases has largely relied on personal observation of enforcement personnel. Photographs of plumes and of visible emissions have generally been accepted.[41] Evidence of air pollution measurements by more sophisticated apparatus will require expert testimony regarding the nature of emissions—including validation of the results of chemical analysis through testimony to the effect that tests were performed in a scientifically and technically acceptable manner and that the measuring instruments were functioning properly and were accurately calibrated.[42]

Most state air pollution control laws require certain regulated industries to maintain records of their operations and to take and maintain measurements of emissions.[43] Some air pollution control codes also contain fuel controls.[44] These fuel controls are based on the insight that the emission from the stack largely depends on what's burned in the furnace. High sulfur fuels will produce heavier sulfur dioxide emissions than low sulfur fuels. To enforce fuel controls, operators of combustion equipment and fuel suppliers are generally required to maintain records of fuel purchases. The power of the enforcement agency to subpoena such records will generally be upheld, as long as the subpoena follows the requirements of law and calls only for the production of documents required to be maintained, and as long as the law itself in requiring the maintenance and production of such records established a reasonable relationship between the need for keeping the records and the proper regulatory purposes to be accomplished.[45] The requirements relating to the production of records

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[39] *See Air Quality Standards and Air Pollution Control Regulations for the Kansas City Metropolitan Area, Regulation VI—Restriction of Emission of Odors* (as revised Feb. 25, 1970).

[40] *See* North American Coal Corp. v. Air Pollution Comm'n, 2 Pa. Commw. 469, 279 A.2d 356 (1971) and Bortz Coal Co. v. Air Pollution Comm'n, 2 Pa. Commw. 441, 279 A.2d 388 (1971), where failure of the Air Pollution Commission to rely on evidence more scientific then mere visual evidence led to dismissal of the complaints. Commonwealth of Pennsylvania, Department of Environmental Resources v. Locust Point Quarries, Inc., 27 Pa. Commw. 270, 367 A.2d 392 (1976).

[41] *E.g.*, Houston Compressed Steel Corp. v. State, 456 S.W.2d 768, 773 (Tex. Civ. App. 1970). *But see* Commonwealth of Pennsylvania, Department of Environmental Resources v. Locust Point Quarries, Inc., 27 Pa. Commw. 270, 367 A.2d 392 (1976), where the court reversed a conviction based on testimony of two environmental specialists and photographs of visible emissions, holding that visual observations were inadequate to sustain the burden of proof beyond a reasonable doubt where recognized scientific tests were available.

[42] *See* City of Abilene v. Hall, 202 Kan. 636, 451 P.2d 188 (1969), as to the requirements for admitting into evidence the results of a gas chromatograph inspection in a drunken driver case.

[43] *See* Table I—State Air Pollution Laws, *above*.

[44] *See* Table I—State Air Pollution Laws, *above*. *E.g.*, Cal. Health & Safety Code § 39051.1 (West Supp. 1971).

required to be kept for air pollution control purposes follow the general rule of administrative law relating to the maintenance and production of records of regulated industries.[46]

Although prosecutions for violation of air pollution standards are generally regarded as absolute offenses, there is nonetheless a line of cases that regards the violation of such standards as something less than absolute. Some states permit a defendant to introduce evidence to show that he could not reasonably meet the standard because of technical impossibility.[47] The courts that follow the technical impossibility—"unavoidable necessity"—doctrine apply what on its surface appears to be a due process rationale that no person should be subjected to criminal prosecution for failing to comply where there was no reasonable means for him to do so.[48] On the other hand the application of such a doctrine probably misses the basic purpose of air pollution control. It is very well to say that a defendant should not be held liable for failing to meet standards that were technically impossible of achievement in the case of emissions that are not imminently hazardous. Such a doctrine, however, would be entirely out of place in the case of emissions of a highly toxic nature. The courts that follow the doctrine have generally applied it in smoke pollution cases where the risks were not as great,[49] but they have failed thus far to draw the distinction between cases where the application of the doctrine is relatively harmless and cases where the application of the doctrine may create major risks. In a sense, the doctrine of technical impossibility ignores the legislative mandate. The emission standard can always be met by terminating the activity which causes the excessive emissions. In effect, when the legislature, or an administrative agency, sets an emission standard, it tells the public utility or the affected industry that it may only continue with its principal activity if it can manage to do so without violating emission standards. The legislative judgment that a particular standard must be met implies that if it can only be met at the cost of terminating the activity that produces it, that the activity be terminated. The legislature has effectively made the value judgment that the reduction of emissions is more important than the particular activity that gave rise to them. When a court applies the doctrine of technical impossibility, it defeats that legislative value judgment.[50]

Another aspect of the same problem that deserves mention is that of cost. The maximum cost that a polluter may have to incur to meet emission standards is the cost of terminating his industrial activity altogether. Short of such a drastic remedy, however, the polluting plant can usually come considerably closer to meeting emission standards by greater expenditures for pollution control devices and technology. Hence, the real issue in cases of technical impossibility is not one of absolute impossibility but of technical feasibility at what price. This element has also been imperfectly considered in the cases that have acquitted polluters on charges of violation for reason of unavoidable necessity. Some cases merely draw attention to the large amounts the polluter had actually spent on control technology[51] without considering how much he would have to spend to meet the statutory requirements. The defense of unavoidable necessity based on technical impossibility has

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[45] *See generally* Gellhorn & Byse, Administrative Law, Ch. 4 (1970), but note *Appeal Bd. of Dept. of Environmental Control of Chicago v. U.S. Steel Corp., 48 Ill. 2d 575, 272 N.E.2d 46 (1971)*, where a municipality's air quality control board was denied the subpoena power on the ground that this power was not *specifically* stated in the legislature's grant of authority to municipalities to enact environmental protection ordinances.

[46] Gellhorn & Byse, Administrative Law, Ch. 4 (1970).

[47] *E.g.*, *People v. Cunard White Star, Ltd., 280 N.Y. 413, 21 N.E.2d 489 (1939)*; *Pennsylvania v. Pennsylvania Power Co., 12 Pa. Commw. 212, 316 A.2d 96, 4 ELR 20433 (1973)*, *aff'd*, *461 Pa. 675, 337 A.2d 823 (1975)*.

[48] *E.g.*, *People v. Cunard White Star, Ltd., 280 N.Y. 413, 21 N.E.2d 489 (1939)*; *Pennsylvania v. Pennsylvania Power Co., 12 Pa. Commw. 212, 316 A.2d 96, 4 ELR 20433 (1973)*, *aff'd*, *461 Pa. 675, 337 A.2d 823 (1975)*.

[49] *E.g.*, *People v. Cunard White Star, Ltd., 280 N.Y. 413, 21 N.E.2d 489 (1939)*; *Pennsylvania v. Pennsylvania Power Co., 12 Pa. Commw. 212, 316 A.2d 96, 4 ELR 20433 (1973)*, *aff'd*, *461 Pa. 675, 337 A.2d 823 (1975)*.

[50] *See* *Consolidated Coal Co. v. Kandle, 105 N.J. Super. 104, 120, 251 A.2d 295, 304 (App. Div. 1969)*; G. Newcombe, *Impossibility: A Viable Defense Under the Clean Air Act?*, 1 Colum. J. Env. L. 147 (1974).

[51] *E.g.*, *People v. Oswald, 1 Misc. 2d 726, 728, 116 N.Y.S.2d 50, 52 (City Ct. 1952)*.

been affirmatively rejected in a number of jurisdictions.[52] In some states, however, consideration of technical feasibility and "economic reasonableness" is required by statute. In Illinois, for example, the Pollution Control Board must take into account the cost of compliance and technical feasibility in promulgating pollution control regulations, and hearings on the economic impact of the regulations are required.[53] The requirement was discussed in *Commonwealth Edison Co. v. Pollution Control Bd.* [54] Commonwealth Edison claimed that the Pollution Control Board had not given proper consideration to its claims of economic costs as required by the statute. The lower court's opinion had construed the statute to require the Pollution Control Board to base its rule-making on (1) a showing that the technological projection built into the rule-making in question was reasonable and capable of compliance by a substantial number of the emission sources in the state, and (2) a formula indicating a balance between cost and degree of pollution control, giving some concrete cost projections. Since the Board, in the judgment of the court, had failed to satisfy these regulatory standards, it rejected the action of the Board in adopting the rules. The Illinois Supreme Court declined to address the issue on the merits, because in its view the Board could, on remand, resolve the issue on other grounds. The court noted that no state enforcement action had been instituted against the company and that the Board had granted "conditional variances" from compliance with the rules in question. It affirmed the lower court's remand, without however, adopting the grounds for its decision.

With respect to enforcement actions, Section 33(c) of the Illinois Environmental Protection Act also requires consideration of economic and technological feasibility:

> In making its orders and determinations, the Board shall take into consideration all the facts and circumstances bearing upon the reasonableness of the emissions, discharges or deposits involved, including but not limited to (i) the character and degree of injury to or interference with the protection of the people; (ii) the social and economic value of the pollution source; (iii) the suitability or unsuitability of the pollution source to the area in which it is located, including the question of priority of location in the area involved; and (iv) the technical practicability and economic reasonableness of reducing or eliminating the emissions, discharges or deposits resulting from such pollution source.[55]

A number of states have sought to mitigate the more rigorous aspects of the federal Clean Air Act by adopting provisions in their state laws that have a tendency to weaken enforcement. One established provision in state

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[52] *E.g.*, Department of Health v. Owens-Corning Fiberglas Corp., 100 N.J. Super. 366, 393–394, 242 A.2d 21, 35 (App. Div. 1968).

See also U.S. Steel v. Air Pollution Control Board of Gary, Indiana, 4 E.R.C. 1273 (Ind. Super. Ct. 1972), in which the court declares that the cost of control is secondary to the need for emission reduction.

See also People ex rel. Ryan ex rel. Douglas v. IBP, Inc., 309 Ill. App. 3d 631, 243 Ill. Dec. 338, 723 N.E.2d 370 (Ill. App. Ct. 1999) (plaintiff who files action in the Illinois circuit court alleging a violation of provision of Environmental Protection Act, under which no person may cause or threaten or allow discharge or emission of any contaminant so as to cause or tend to cause air pollution, is not required to plead facts regarding the technological practicability and economic reasonableness of reducing or eliminating emissions resulting from pollution source).

For treatment of the issue on the federal level, see § 2.03[8], *above*.

[53] Illinois Environmental Protection Act § 27 (1976); Ill. Pub. Acts 1976 (79th General Assembly) ch. 111 1/2 para. 1027.

See also People ex rel. Ryan ex rel. Douglas v. IBP, Inc., 309 Ill. App. 3d 631, 243 Ill. Dec. 338, 723 N.E.2d 370 (Ill. App. Ct. 1999), where the court noted that even though a plaintiff who files action in circuit court alleging a violation of provision of Environmental Protection Act is not required to plead facts regarding the technological practicability and economic reasonableness of reducing or eliminating the emissions, the Act nevertheless requires that such pleadings be made in an administrative action brought before the Pollution Control Board.

[54] 62 Ill. 2d 494, 343 N.E.2d 459, 8 Env't Rep. Cas. (BNA) 1531 (1976).

[55] Ill. Pub. Acts 1976 (79th General Assembly), ch. 111 1/2, para. 1033(c). The provision is discussed in Incinerator, Inc. v. Pollution Control Bd., 59 Ill. 2d 290, 319 N.E.2d 794, 7 E.R.C. 1342 (1974).

law to allow postponement of the full effect of emission regulations are the provisions that authorize variances. The provisions authorizing variances in state laws have now been approved by the U.S. Supreme Court in considering the Georgia State Implementation Plan, as long as a variance does not jeopardize the attainment or maintenance of national air quality standards.[56] Congress, however, has provided tools in certain circumstances for direct federal action to address serious failures of state action in maintaining the NAAQSs.[57]

Other provisions of state law that attempt to circumvent or mitigate the full requirements of the Clean Air Act are laws that authorize the adoption of techniques other than emission controls to attain ambient air quality standards. Such provisions include the provisions that authorize a tall stack strategy, i.e., a dispersion strategy, in lieu of an emission control strategy. Such a tall stack strategy has been expressly disapproved as a primary control strategy though it may be used under federal regulations in instances where primary reliance has been placed on emission controls or where emission controls utilized to the fullest extent will not achieve the ambient air quality standards but additional strategies need to be relied on.[58] Another technique used by states to circumvent the primary federal reliance on emission controls is the authorization of so-called intermittent control systems. One such law, for example, is the statutory provision in Illinois adopted in September of 1975 which amended that state's environmental protection act and authorized the use of such systems until December 31, 1985. The legislative finding authorizing such intermittent control systems recited that this approach was necessary "to alleviate the energy crisis and to preserve the Illinois coal industry during an interim period."[59] Just as in the case of the tall stack strategy as an alternative to emission controls, intermittent control systems have also been rejected by the courts as an appropriate means of meeting the requirements of the Clean Air Act. Similar to tall stacks, intermittent control systems are acceptable as additional strategies but not as alternative strategies to primary reliance on emission controls.[60] It should be noted that all of these state attempts to circumvent the requirements of the Clean Air Act by permitting reliance on strategies other than emission control have the inevitable consequence of interfering with the adoption of a true non-degradation policy. Tall stacks utilize dispersion in lieu of emission control. The consequence of dispersion is not a reduction in the total amount of emissions; it simply is to spread emissions over a wider area and consequently more thinly. Intermittent control systems, similar to tall stacks, do not reduce the amount of emissions but instead of spreading emissions over a broader area, they disperse emissions over a longer period of time—emissions are retained and dispersed at times more widely spaced and when atmospheric conditions are more likely to disperse the emissions or pollutants more rapidly. In both instances, the total amount of emissions is not reduced; what is reduced is merely the immediate impact of such emissions. The United States Supreme Court has not dealt with the tall stack and intermittent control systems issues, and has not thus far directly addressed

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[56] *Train v. Natural Resources Defense Council, 421 U.S. 60, 95 S. Ct. 1470, 43 L. Ed. 2d 731 (1975)*. For discussion, see *§ 2.03[6][c]* at N. 49 *et seq. supra.*

See also Commonwealth of Virginia v. EPA, 108 F.3d 1397, 323 U.S. App. D.C. 368 (D.C. Cir. 1997), followed in *State of Michigan v. U.S. Environmental Protection Agency, 213 F.3d 663, 686, 341 U.S. App. D.C. 306 (D.C. Cir. 2000)*, where the court reiterated that under § 110 of the Clean Air Act, each state retains the power in its SIP to determine how it will achieve the NAAQS, and that the EPA may not dictate to a state a particular "source-specific means" to that end.

[57] *See Appalachian Power Co. v. EPA, 249 F.3d 1032, 346 U.S. App. D.C. 38 (D.C. Cir. 2001)*, which in part noted that the principle that each state retains the authority to determine in the first instance the necessary and appropriate control measures needed to satisfy the NAAQS cannot be absolute in the face of § 126 of the Clean Air Act. This section contemplates that in at least some circumstances, EPA will directly regulate sources within a state (*see 42 U.S.C. § 7426(c)*. Neither *Train* and *Virginia* nor *Michigan* considered the interaction of their holdings with § 126—note that *Train v. NRDC* was decided before the enactment of § 126. Because § 126 authorizes EPA to control sources directly, rather than providing a means for EPA to encourage states to control them, it is considered similar to the provisions for the federal implementation plans in § 110(c) authorizing EPA to devise and promulgate a specific plan of its own only if a state fails to submit an implementation plan that satisfies the standards of § 110(a)(2).

[58] For discussion of "tall stack" strategy, and of related federal regulations, see *§ 2.03[7][a] above*.

[59] Ill. Pub. Act 79-1099, eff. Sept. 26, 1975.

[60] *See* N. 56 *above*.

the question of non-degradation, though lower courts have held that state control systems that rely on dispersion may not take the place of emission control strategies.[61]

Cases involving prosecutions for air pollution violations generally require a reasonable approach to the enforcement process on the part of the air pollution control agency. When the state law requires certain kinds of installations, such as paper mills, to obtain pollution permits allowing them to pollute to a limited degree, and when the law prohibits any degree of pollution by persons not holding such a pollution permit, an agency may not commence prosecution of a violator immediately upon passage of the law without first providing him with an opportunity of securing the appropriate pollution permit.[62] A government agency with authority to issue permits also has the discretion to extend, terminate, or revoke permits if the source has not complied with the requirements of the permits.[63]

Actions involving the collection of a civil penalty for air pollution violations differ rather significantly from prosecutions for such violations, particularly with respect to the applicable procedures. The most obviously significant difference between the two is the element of burden of proof. In a criminal prosecution, the agency has the burden of proving the violation beyond a reasonable doubt.[64] In proceedings to collect a civil penalty, proof by a fair preponderance of the evidence as in other civil actions is sufficient.[65] Both civil and criminal violation actions must follow the requirements of due process and both kinds of enforcement have been upheld as appropriate exercises of the state's police power.[66] The question remains, however, whether a criminal

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[61] *See, e.g.*, Natural Resources Defense Council v. Environmental Protection Agency (Georgia Plan), 489 F.2d 390 (5th Cir. 1974), *rev'd on other grounds*, Train v. Natural Resources Defense Council, 421 U.S. 60, 95 S. Ct. 1470, 43 L. Ed. 2d 731 (1975). For discussion, see § 2.03[6][c] at N. 49 *et seq. supra.*

[62] *See* State v. Pascagoula Veneer Co., 227 So. 2d 286 (Miss. 1969).

See also People v. Allied Health Care Products, Inc., 81 N.Y.2d 27, 595 N.Y.S.2d 713, 611 N.E.2d 752 (N.Y. 1993). The court of appeals dismissed an indictment charging operation of an air contamination source without a permit, since the defendants had applied for the required permit at the very time they were accused, and the Department of Environmental Conservation regulation states that "an existing air contamination source … shall be permitted to continue operation" while its permit application is pending. The court ruled that regulation 6 N.Y.C.R.R. § 201.2(c) allowing operation while a permit application is pending bars prosecution for any of the air-quality related crimes, since all amounts to "air contamination."

See also Harris County v. Allwaste Tank Cleaning Inc., 808 S.W.2d 149 (Tex. Ct. App. 1991), where the court held that a pollution generator without a Clean Air Act permit could nevertheless legally operate its business while its permit application was pending on the authority of an Air Control Board order settling prior enforcement proceedings.

[63] *See* Environmental Systems, Inc. v. South Coast Air Quality Management Dist., 229 Cal. App. 3d 110, 280 Cal. Rptr. 108 (Cal. Ct. App. 1991).

See also Enviroclean, Inc. v. Arkansas Pollution Control & Ecology Comm'n, 314 Ark. 98, 858 S.W.2d 116 (Ark. 1993). The court held that substantial evidence supported the decision that sale of 100 percent of the stock of the sole stockholder resulted in a transfer of the permit and the permit could thus be revoked according to its terms. In addition, the Commission was not estopped from revoking the air permit by any assurance it made to the permit holder that the sale of stock would not affect the permit. The court noted that the sale was more than a simple sale of stock in that a change of control occurred. The purchasing corporation was deceptive in its efforts to obtain a permit; it intended to acquire the existing permit rather than to apply for a permit itself as required by the terms of the permit.

[64] *E.g.*, Buffalo v. Savage, 1 Misc. 2d 337, 338, 148 N.Y.S.2d 191, 192 (Sup. Ct. 1955).

[65] *See* Department of Health v. Owens-Corning Fiberglas Corp., 100 N.J. Super. 366, 392–393, 242 A.2d 21, 35 (App. Div. 1968). *See also* Walker, *Laws, Regulations and Ordinances*, 3 Natural Resources Law 74 (1970).

[66] *E.g.*, Oriental Blvd. Co. v. Heller, 27 N.Y.2d 212, 221–222, 316 N.Y.S.2d 226, 265 N.E.2d 72, 76 (1970); Houston Compressed Steel Corp. v. State, 456 S.W.2d 768, 775 (Tex. Civ. App. 1970). In Harris-Hub v. Illinois Pollution Control Bd., 50 Ill. App. 3d 608, 8 Ill. Dec. 685, 365 N.E.2d 1071 (1977), the court set aside a $500 civil penalty against a manufacturer for

prosecution or a civil penalty action is the appropriate sanction for pollution control violation, and whether one or the other of the applicable procedures is better designed to accomplish compliance. The question is particularly relevant in state enforcement actions which may involve a number of smaller cases, unlike federal actions, which are far more likely to focus on significant, large cases involving major defendants with sizable industrial interests. On grounds of principle as well as procedural familiarity, the civil penalty action seems preferable to criminal prosecution. In smaller routine cases, criminal prosecution for absolute offenses has generally had the tendency to trivialize the offense; the fine then gets to be regarded as a cost of doing business, unrelated to the need for the correction of the condition that gave rise to the prosecution. Presumably, the need for the presence of individual criminal defendants in court may cause undesirable trial delays which frustrate prompt enforcement. In principle, it seems undesirable, too, to stigmatize the defendant with a criminal record for an offense that is commonly regarded as a violation without intent or malice, except in the case of clearly knowing violations. The entire subject of the appropriateness and effectiveness of criminal and civil actions must therefore be separately considered in some detail.[67]

The most significant and heretofore least frequently used enforcement action on the state level is an action for an injunctive abatement order. It is likely to be the most effective sanction because it alone relates directly to the discontinuance, abatement, or correction of the offending conditions.[68] Neither the payment of a criminal fine nor the payment of a civil penalty necessarily result in the correction of the condition. The defendant is at liberty to continue his violations, thereby subjecting himself to further prosecutions or civil actions. Abatement orders stand on a different footing, and the use of equity powers in aid of agency abatement efforts has been upheld repeatedly.[69] It has been accepted in the field of air pollution enforcement, as in other administrative enforcement areas, that the usual rules relating to injunctive relief in private litigation do not fully apply to enforcement actions. The usual rule in private litigation is that equity will not enjoin a crime. It is clear, however, that equity will enjoin an air pollution violation.[70] Indeed, the law may offer a choice between prosecution in the criminal courts and bringing an injunction proceeding in the civil courts.[71] Another rule generally applicable to injunctions not applicable here is the usual requirement that the issuance of an injunction requires the court to balance the equities between the interest of the defendant and the plaintiff, taking into account the general economic and social consequences of enjoining defendant's activities.[72] In statutorily authorized injunctions for

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unintentionally failing to secure an operating permit, because the violation did not involve pollution and because the company had earlier gone to great expense to reduce emissions from its plant. *See also* 78 A.L.R.2d 1305.

[67] *See* § 2.08[1][b] *below*. *Compare* Walker, *Enforcement of Performance Requirements* 10 Ariz. L. Rev. 81 (1968), *with* Mix, *The Misdemeanor Approach to Pollution Control*, 10 Ariz. L. Rev. 90 (1968). *See also* H. J. Goldschmid, *An Evaluation of the Present and Potential Use of Civil Money Penalties as a Sanction by Federal Administrative Agencies* (Report prepared for the Committee on Compliance and Enforcement of the Administrative Conference of the United States, Nov. 1972); Charney, *The Need for Constitutional Protections for Defendants in Civil Penalty Cases*, 59 Cornell L. Rev. 478 (1974).

[68] For an examination of the scope and possibilities of injunctive relief not limited to environmental litigation, see Note, *Developments in the Law—Injunctions*, 78 Harv. L. Rev. 994 (1965). For an examination of injunctive procedures as applied to air pollution control, see Walker, *Enforcement of Performance Requirements* 10 Ariz. L. Rev. 81 (1968).

See also United States v. Murphy Oil USA, Inc., 143 F. Supp. 2d 1054 (W.D. Wis. 2001). The court had to resolve the important question of whether the five-year statute of limitations set forth in 28 U.S.C. § 2462 for legal remedies applies to claims for equitable relief by the United States. The court found that the majority of the courts have concluded that 28 U.S.C. § 2462 does not apply to claims for equitable relief by the United States. The court then ruled that because nothing in the Clean Air Act itself or § 2462 precluded the government from seeking injunctive relief beyond the five-year statute of limitations period, plaintiff's claims for injunctive relief were not barred by the statute of limitations even if § 2462 precluded the recovery of damages.

[69] *E.g.*, Houston Compressed Steel Corp. v. State, 456 S.W.2d 768, 773–774 (Tex. Civ. App. 1970).

[70] Houston Compressed Steel Corp. v. State, 456 S.W.2d 768, 773–774 (Tex. Civ. App. 1970).

[71] *See* Table I—State Air Pollution Laws, *above*.

[72] *E.g.*, Houston Compressed Steel Corp. v. State, 456 S.W.2d 768, 773 (Tex. Civ. App. 1970); Bicknell v. Boston, 8 Env't Rep. Cas. (BNA) 1241 (Mass. Aug. 6, 1975) (no balancing of equities in cases of public nuisance and danger to health). *See also*

the abatement of air pollution, the legislature, in effect, has already balanced the equities—by authorizing the issuance of injunctive orders in certain circumstances it has determined that the public interest in reducing harmful emissions outweighs the defendant's interest, as well as any other social or economic interests, in the continuation of his business.[73] There is, however, a limited area for balancing certain kinds of equities, for many state laws require the court in issuing abatement orders to take into account economic and technical feasibility.[74] This does not necessarily mean, however, that no injunction will issue when technical or economic difficulties are shown, but merely that the court must take difficulties into account in determining the kind of injunctive order it will issue.[75] The clear possibility in the issuance of injunctive abatement orders is to provide for compliance over a period of time, to provide for intermediate steps in meeting the eventual compliance goal, and to stage compliance in such a way as to achieve the result of reduced emissions without undue economic hardship.[76]

[3] State and Local Legislation Addressing Global Warming

An increasing number of states have passed laws concerning global warming. In 1990, Connecticut enacted the first state global warming law to require specific actions for reducing carbon dioxide.[1] In 1997, Oregon enacted the first state law limiting emissions of carbon dioxide by new energy utilities.[2] In 2000, New Jersey added provisions to its emissions trading rule for the generation and banking of greenhouse gas (GHG) credits.[3] In 2002, California enacted legislation that made it the first state to regulate greenhouse gas emissions from passenger vehicles, including cars, sport utility vehicles, mini-vans, and pickup trucks.[4] In September 2006, California passed AB 32 (the bill's number), otherwise known as the Global Warming Solutions Act.[5] As of December 2012, at least 20 states have passed legislation, enacted executive orders or proposed plans concerning GHG reduction targets. These states include Arizona, California, Colorado, Connecticut, Florida, Hawaii, Illinois, Massachusetts, Maine, Minnesota, New Hampshire, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia and Washington.[6]

Of these 20 states listed above, eight adopted greenhouse gas emissions reduction plans in 2007. On February 13, 2007, then-Governor Rod Blagojevich of Illinois announced new statewide GHG emission reduction targets of 1990 levels by 2020 and 60 percent below 1990 levels by 2050. On May 3, 2007, Governor Christine Gregoire of Washington signed SB 6001, which set into law statewide GHG emission reduction goals and strategies originally announced in a February 2007 executive order. The new law commits Washington to

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Lloyd A. Fry Roofing Co. v. Air Pollution Variance Bd., 191 Colo. 463, 553 P.2d 800 (Colo. 1976); Pollack, *Legal Boundaries of Air Pollution Control—State and Local Legislative Purpose and Techniques*, 1968 Law and Contemporary Probs. 331 (1968).

[73] *See* N. 69 *above*.

[74] *See* Table I—State Air Pollution Laws, *above*.

[75] *E.g.*, *Houston Compressed Steel Corp. v. State, 456 S.W.2d 768, 775 (Tex. Civ. App. 1970)*.

[76] *E.g.*, *Shahmoon Industries, Inc. v. Dept. of Health, 93 N.J. Super. 272, 284–285, 225 A.2d 699, 705–706 (App. Div. 1966)*, *cert. denied*, ***49 N.J. 358, 230 A.2d 392 (1967)***.

[1] 1990 Conn. Acts 219 (H.B. 5696).

[2] H.B. 3283 (signed June 26, 1997).

[3] *N.J. Admin. Code §§ 7:27-30.2 & 7:27-30.5*.

[4] A.B. 1493 (Cal. signed July 22, 2002).

[5] A copy of the bill and its legislative history are available at http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_32&sess=PREV&house=B&author=nunez. For a complete discussion of the California Global Warming Solutions Act, see *§ 2.04[5]*.

[6] A 50-state survey of state responses to climate change, prepared by the Pace Law School Center for Environmental Legal Studies, can be found at http://www.abanet.org/abapubs/globalclimate/docs/stateupdate_102908.pdf. Another survey can be found at http://www.pewclimate.org/what_s_being_done/in_the_states/emissionstargets_map.cfm.

reduce statewide emissions to 1990 levels by 2020, 25 percent below 1990 levels by 2035, and 50 percent below 1990 levels by 2050.[7] Washington subsequently passed a law in 2008 directing sources of GHGs in the state to take further steps to reduce their emissions and for major sources of GHGs to begin reporting their emissions beginning in 2010.[8] On May 25, 2007, then-Minnesota Governor Tim Pawlenty signed into law the Next Generation Energy Act, which established statewide GHG emission reduction goals of 15 percent by 2015, 30 percent by 2025, and 80 percent by 2050, based on 2005 levels.[9] On June 30, 2007, Hawaii Governor Linda Lingle signed into law Act 234, the Global Warming Solutions Act of 2007, which mandates that statewide GHG emissions be reduced to 1990 levels by 2020.[10] On July 6, 2007, then-New Jersey Governor Jon S. Corzine signed into law the Global Warming Response Act, A3301, which limits the level of statewide GHG emissions, and GHG emissions from electricity generated outside the state but consumed in the state, to 1990 levels by 2020 and to 80 percent below 2006 levels by 2050.[11] These targets were previously set in Executive Order 54 which the Governor signed in February 2007. On July 13, 2007, then-Florida Governor Charlie Crist issued Executive Order 07-127, which established statewide GHG emission reduction targets of 2000 levels by 2017, 1990 levels by 2025, and 80 percent below 1990 levels by 2050.[12] On August 6, 2007, Oregon Governor Ted Kulongoski signed House Bill 3543, which set statewide GHG emission targets for the state.[13] HB 3543 directs the state to stop the growth of greenhouse gas emissions by 2010 and to reduce GHG emissions to 10 percent below 1990 levels by 2020 and to 75 percent below 1990 levels by 2050.

In 2008, Massachusetts enacted the Global Warming Solutions Act, which mandates emissions reductions of up to 25% below 1990 levels by 2020 and 80% by 2050.[14] In July 2009, Massachusetts released final reporting rules and baseline figures under which the state will be able to measure its progress in reducing GHG emissions.[15] On September 16, 2016, Governor Charles D. Baker issued an executive order providing direction for the state's efforts to mitigate greenhouse gas emissions and to build resilience and adapt to climate change.[16] The order also required MassDEP to publish final regulations to meet the 2020 statewide emissions limit mandated by the Global Warming Solutions Act by August 2017.

In May 2009, Maryland enacted the Greenhouse Gas Reduction Act.[17] Among other things, the Act requires the state to achieve a 25% reduction in GHG emissions from 2006 levels by 2020 and a 90% reduction by 2050.

In March 2009, the New York State Department of Environmental Conservation issued proposed guidelines for the discussion of climate change issues under the New York State Environmental Quality Review Act. In July 2009, these regulations were finalized.[18]

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[7] A copy of this law is available at http://www.leg.wa.gov/pub/billinfo/2007–08/Pdf/Bills/Senate%20Passed%20Legislature/6001-S.PL.pdf.

[8] H.B. 2815, L. 2008, ch. 14. The text of the legislation is available at http://apps.leg.wa.gov/documents/billdocs/2007–08/Pdf/Bills/Session%20Law%202008/2815-S2.SL.pdf.

[9] A copy of this law is available at http://www.revisor.leg.state.mn.us/bin/bldbill.php?bill=S0145.2.html&session=ls85.

[10] A copy of this law is available at http://www.capitol.hawaii.gov/sessioncurrent/bills/HB226_CD1_.htm.

[11] A copy of this law is available at http://www.njleg.state.nj.us/2006/Bills/A3500/3301_R2.PDF.

[12] A copy of this Executive Order is available at http://www.flgov.com/pdfs/orders/07-127-emissions.pdf.

[13] A copy of this law is available at http://www.leg.state.or.us/07reg/measures/hb3500.dir/hb3543.a.html. In October 2008, the Oregon Environmental Quality Commission adopted a set of rules that will require businesses to begin reporting their GHG emissions in 2009. As part of the new rules, industries that hold Title V air quality permits or other polluting permits with the State Department of Environmental Quality will have to start reporting their emissions. Information on the reporting system is available at http://www.deq.state.or.us/aq/climate/rulemaking.htm.

[14] Mass. Gen. L. Ch. 21N.

[15] These rules are available at *http://www.mass.gov/dep/air/climate/1990_2020_final.pdf*.

[16] Exec. Order No. 569 (Sept. 16, 2016).

[17] 2009 Md. Laws ch. 172 (S.B. 278).

In December 2009, the governors of 11 northeastern states—which includes the 10 states that are part of the Regional Greenhouse Gas Initiative plus Pennsylvania—signed a Memorandum of Understanding committing their states to further reduce greenhouse gas emissions from fuels, including transportation fuels, and, potentially, fuel oil used for heating.[19] The states committed to assess the feasibility of a range of reduction goals by early 2011, including a 10 percent cut in fuel carbon intensity and development of a framework for a regional low-carbon fuel standard to ensure sustainable use of renewable fuels. The framework will also determine the best methods for creating and trading emission credits for the sale of low-carbon fuel. The group intends ultimately to develop a model rule for enforcing the standard, which individual states may adopt through administrative or legislative means.

In March 2010, Washington State enacted a law that aims to align the state's greenhouse gas emissions reporting requirements with EPA's reporting rule.[20] The Washington State Department of Ecology had developed a greenhouse gas emissions reporting system in 2009, before EPA adopted its reporting rule in September 2009. Pursuant to the new law, the state's reporting requirements would be closer to the EPA rule. However, more facilities will be subject to the reporting requirements than under EPA's measure. While EPA requires annual reporting for fuel suppliers and facilities that emit 25,000 metric tons of greenhouse gas emissions per year, Washington's threshold is 10,000 metric tons.

In April 2010, Arizona enacted a law that forbids state agencies from regulating GHG emissions without legislative approval.[21] The law effectively strips the state Department of Environmental Quality of authority that former Governor Janet Napolitano gave it via executive order in 2006.

In January 2011, Massachusetts released a plan designed to achieve a reduction of statewide GHG emissions of 25 percent below 1990 levels by 2020 through expansion of existing programs, along with new initiatives in building standards, electricity generation, and transportation.[22]

In June 2012, the New York Department of Environmental Conservation (DEC) adopted regulations that limit CO_2 emissions from new major electric generating facilities and certain expansions at existing electric generating facilities.[23] DEC adopted the regulations as required by the Power NY Act of 2011, which Governor Andrew M. Cuomo signed into law in August 2011.[24] The regulations establish CO_2 emission limits for proposed new major electric generating facilities that have a generating capacity of at least 25 megawatts, and for increases in capacity of at least 25 megawatts at existing electric generating facilities. The carbon dioxide emission regulations set a CO_2 emission limit of 925 lbs/mw-hr (output-based limit) or 120 lbs/mmBtu (input-based limit) for most new or expanded base load fossil fuel-fired plants; set a CO_2 emission limit of 1450 lbs/mw-hr (output-based limit) or 160 lbs/mmBtu (input-based limit) for simple cycle combustion turbines; allow each facility's owner or operator to choose whether to comply with the relevant output-based or input-based emission limits; provide for DEC to set case-specific CO_2 emission limits for certain power plants that fire non-fossil fuels; and require recordkeeping, monitoring and reporting consistent with existing state and federal regulations.

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[18] *See* New York State Dept. of Envtl. Conservation, *Climate Change Guidance Documents*, available at http://www.dec.ny.gov/regulations/56552.html.

[19] The Memorandum of Understanding is available at http://www.nescaum.org/topics/low-carbon-fuels.

[20] L. 2010, ch. 146. For a discussion of EPA's Final Mandatory Reporting of Greenhouse Gases Rule, see § 1A.02[5][e].

[21] L. 2010, ch. 152.

[22] The plan, entitled *Massachusetts Clean Energy and Climate Plan for 2020*, is available at http://www.mass.gov/Eoeea/docs/eea/energy/2020-clean-energy-plan.pdf.

[23] These regulations are available at http://www.dec.ny.gov/regulations/82870.html.

[24] L. 2011, ch. 388.

In April 2013, Washington State enacted a law that establishes a Climate Legislative and Executive Work Group that will recommend a program for reducing GHG emissions to meet state targets.[25] The legislation requires the work group to submit a report to the state legislature by December 31, 2013. The report is required to include a timeline for action and funding required for implementation.

In May 2019, Washington enacted the Clean Energy Transformation Act, which sets milestones for reducing electric utilities greenhouse gas emissions. By 2025, utilities must eliminate coal-fired electricity; by 2030, utilities must be greenhouse gas neutral; and by 2045, all electricity must be 100% renewable or non-emitting.

In 2019, New York enacted the very ambitious Climate Leadership and Community Protection Act (CLCPA).[25.1] CLCPA requires DEC to set statewide greenhouse gas emissions limits of 60% of 1990 emissions for 2030 and 15% of 1990 emissions for 2050. DEC must then promulgate regulations to achieve those limits. CLCPA permits and sets criteria for alternative compliance mechanisms for sources to achieve net zero emissions and would allow DEC to provide for use of such mechanisms to account for up to 15% of statewide emissions if the offsets do not place a disproportionate burden of environmental impact on disadvantaged communities. DEC, in consultation with the New York State Energy Research and Development Authority, would also establish a Social Cost of Carbon for use by State agencies. CLCPA also requires the New York State Public Service Commission (PSC) to establish a renewable energy program to require at least 70% of statewide electric generation in 2030 to come from renewable sources and to achieve zero emissions from electricity by 2040. The PSC must also establish programs to require 9 gigawatts (GW) of offshore wind generation by 2035, 6 GW of photovoltaic generation by 2025, and 3 GW of statewide energy storage capacity by 2030. These programs, as well as measures established in already-ongoing PSC energy efficiency proceedings, must be designed to provide benefits to disadvantaged communities.

CLCPA also establishes a Climate Action Council that must prepare and approve a scoping plan for achieving CLCPA's greenhouse gas limits. The Council must also make recommendations for reduction of emissions beyond 85%, net zero emissions in all sectors of the economy. The scoping plan's recommendations must be incorporated into the State Energy Plan.

The Climate Advisory Council's work is to be informed by advisory panels in areas of special expertise such as transportation, energy-intensive and trade-exposed industries, land-use and local government, energy efficiency and housing, power generation, and agriculture and forestry, as well as by a Just Transition Working Group. The Just Transition Working Group will also prepare a separate report to address job creation to counter climate change and the types of jobs, skills, and training required, as well as workforce disruption due to community transitions. In addition, CLCPA creates a Climate Justice Working Group to establish "criteria to identify disadvantaged communities for the purposes of co-pollutant reductions, greenhouse gas emissions reductions, regulatory impact statements, and the allocation of investments" related to CLCPA. (CLCPA sets a goal of investing or directing resources so that disadvantaged communities receive 40% of the overall benefits of spending on clean energy and energy efficiency programs and requires that disadvantaged communities receive no less than 35% of overall benefits of spending on such programs.) The Climate Justice Working Group must also consult with DEC in DEC's establishment of a demonstration program for community air monitoring and a strategy for reducing toxic air contaminants and criteria air pollutants.

CLCPA requires DEC to issue annual reports on statewide greenhouse gas emissions and to issue progress reports on CLCPA's implementation at least every four years. DEC also is primarily responsible for a report on barriers to, and opportunities for, access to or community ownership of services and commodities such as distributed renewable energy resources, energy efficiency investments, zero-and low-emission transportation options, and adaptation measures.

Most of CLCPA is codified in a new Article 75 of the Environmental Conservation Law and new Section 66-p of the Public Service Law, although some provisions would not be codified, including a provision that requires State agencies to determine whether certain actions such as permitting decisions and contracts are consistent with CLCPA's greenhouse gas limits and to identify alternatives and mitigation measures if actions are inconsistent with the limits.

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[25] S.B. 5802; L. 2012, ch. 6.

[25.1] L. 2019, ch. 106 (primarily codified at N.Y. E.C.L. art. 75, ***N.Y. Pub. Serv. Law § 66-p***).

Cities are also taking action to address climate change. Municipal governments are themselves GHG generators through their sewage treatment plants; solid waste landfills; fleets of police cars, garbage trucks, fire engines, and maintenance vehicles; and school, office, and social service buildings. Many cities are reducing their own emissions, and utilizing their considerable purchasing power to specify clean appliances, vehicles, and electricity. Some are using their zoning and building code powers to influence private construction. Through the U.S. Mayors Climate Protection Agreement, some cities have agreed to reduce their emissions to Kyoto levels. The Clinton Foundation is leading other efforts by some of the world's largest cities. Over 125 U.S. cities have joined the Cities for Climate Protection Campaign and are implementing plans to reduce local emissions of greenhouse gases.[26] The City of Portland, Oregon has developed its own plan to reduce greenhouse gas emissions.[27] In addition, New York City has also developed a plan to reduce its greenhouse gas emissions by 30 percent by 2030.[28]

In June 2007, the Executive of King County, Washington (which includes Seattle) issued an Executive Order requiring county agencies to consider climate change in their review of projects under the Washington's State Environmental Policy Act (SEPA). The order requires that "climate impacts, including but not limited to those pertaining to greenhouse gases, be appropriately identified and evaluated" for every public or private project where a county department is acting as lead agency under SEPA.[29] A similar order was proposed for city agencies in Seattle, Washington in October 2007.

In September 2008, Chicago announced a plan to increase energy efficiency and reduce GHG emissions 80% by 2050 compared to 1990 levels.[30] Thirty percent of the reductions would come from investment in and implementation of energy efficiency programs for commercial, industrial and residential buildings, 34% would come from upgrading power plants and increasing renewable energy use, 23% would come from improvements in public transportation, and 13% would come from programs related to waste and industrial pollution.

In December 2009, New York City enacted a suite of four laws aimed at increasing energy efficiency in existing buildings over 50,000 square feet,[31] which accounts for half of the building square footage in the city. Buildings account for 80% of the city's GHG emissions. One law requires covered buildings to conduct energy audits every 10 years. While the original version of the bill required both retrofitting and retro-commissioning to correct deficiencies found in an audit, the approved version requires private buildings only to carry out the retrocommissioning. Another bill requires covered buildings to benchmark their energy use and water consumption through EPA's Portfolio Manager program (Intro. No. 476-A).[32] In November 2011, New York City released its first Energy Benchmarking Report for NYC municipal buildings.[33] Besides giving the raw numbers, the report highlights the benchmarking results for libraries, fire stations, police stations, warehouses, medical offices, K-12 schools, courthouses, and office buildings. The report indicates that since the law was enacted, New York City has benchmarked 2,730 municipal buildings using EPA's Energy Star Portfolio Manager tool.[34]

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[26] Additional information about this program is available at http://www.iclei.org/us/ccp.

[27] City of Portland and Multnomah County, Local Action Plan on Global Warming (Apr. 2001).

[28] New York City's plan, called PlaNYC, is available at http://www.nyc.gov/html/planyc2030/downloads/pdf/full_report.pdf.

[29] Information regarding the Executive Order is available at http://www.metrokc.gov/permits/publications/news/Sepa07Aug31.aspx.

[30] The Chicago Climate Action Plan is available at http://www.chicagoclimateaction.org.

[31] The laws originally applied to buildings over 50,000 square feet, but these laws have subsequently been amended to apply to buildings over 25,000 square feet. *See* *http://www.nyc.gov/html/gbee/html/plan/ll84.shtml*.

[32] This bill is available at *http://legistar.council.nyc.gov/LegislationDetail.aspx*?ID=451082&GUID=52AA7997-4F22-49E9-BDE2-A19FAA29E1C6&Options=ID|Text|&Search=476.

[33] The report is available at *http://www.nyc.gov/html/dem/downloads/pdf/Benchmarking%20Report%2011-23-11.pdf*.

[34] As discussed in *§ 1A.15[3][b]*, Portfolio Manager is an energy management tool that allows users to track and assess energy and water consumption of their buildings and to compare them with buildings of similar type and size.

According to the report, New York City K-12 schools, courthouses, medical offices, warehouses, and offices performed near national averages. The 1,162 public schools had an average benchmark score of 53. Courthouses and City offices had average benchmark scores of 54 and 59, respectively. In contrast, medical offices and warehouses both had scores of 43, well below the national average. There were 673 building types that are considered "non-ratable," which means that they are included in facility categories that are not currently eligible for receiving benchmark scores using Portfolio Manager. These include City libraries, fire and police stations, etc. The City's 108 libraries' average energy use intensity was 22% better than the national average. However, fire and police stations were 18% and 8% worse than the national average, respectively. The other two bills require covered buildings to carry out lighting upgrades by 2025 (Intro. No. 973-A)[35] and create a city energy conservation construction code for building renovations that would, among other things, remove an exemption from the State Energy Code for renovations that include less than 50% of a building's subsystems (Intro. No. 564-A).[36]

Other cities have followed New York City's lead and enacted their own energy disclosure laws. For example, in January 2010, Seattle enacted a law that requires owners of nonresidential and multi-family buildings exceeding 50,000 square feet to provide "energy benchmarking reports" using Portfolio Manager. Under the law, building owners are required to provide copies of the energy benchmarking reports to current and prospective tenants, prospective buyers, and lenders who ask for them. Owners who provide inaccurate reports or who fail to report may be cited and fined or may receive a notice of violation.[37]

In February 2011, San Francisco enacted the Existing Commercial Buildings Energy Performance Ordinance, which requires owners of commercial buildings greater than 10,000 square feet to benchmark their buildings.[38] Pursuant to the ordinance, nonresidential building owners are now required to benchmark their buildings' energy use using EPA's Energy Star Portfolio Manager and file this information with the city on an annual basis. In addition, the ordinance requires the owners of these buildings to conduct energy audits every five years to optimize building energy efficiency. Besides identifying the sources of energy use, a building energy audit seeks to prioritize the energy uses to find the most cost-effective ways to reduce building energy use. Beginning in October 2011, owners of commercial buildings greater than 50,000 square feet will be required to conduct energy audits. By 2013, the rules will apply to all commercial properties over 10,000 square feet.

In January 2013, Washington D.C. enacted a regulation requiring privately-owned buildings over 100,000 square feet to complete annual energy and water use benchmarking.[39] The rule states that all buildings subject to it must report their 2012 energy and water use to the Washington, D.C. District Department of the Environment by April 1, 2013 using EPA's Energy Star Portfolio Manager software. The rule also requires that privately owned buildings over 150,000 square feet file brief energy and water use benchmark reports for 2010 and 2011. Owners of buildings over 50,000 square feet will be required to report their energy and water use beginning in 2014.

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[35] This bill is available at

http://legistar.council.nyc.gov/LegislationDetail.aspx?ID=452544&GUID=6D5AC831-E5AD-4A26-B6CC-C46E6ED946FC&Options=ID|Text|&Search=973.

[36] This bill is available at

http://legistar.council.nyc.gov/LegislationDetail.aspx?ID=451298&GUID=B81B9B48-C100-428A-AD34-59616CC28C32&Options=ID|Text|&Search=564.

[37] Seattle City Council Bill No. 116731, *available at* http://clerk.ci.seattle.wa.us/~public/CBOR1.htm. At this website, type "116731" in the "Council Bill No." search box and then click on "Submit Query."

[38] The ordinance is available at *http://www.environmentalleader.com/wp-content/uploads/2011/02/SF-Commercial-Buildings.pdf*.

[39] This regulation is available at *http://green.dc.gov/energybenchmarking*.

In September 2013, Chicago enacted a benchmarking ordinance.[40] The law requires the owners of commercial, residential, and municipal buildings over 50,000 square feet to track energy consumption and report the findings to the city. The law is phased in such that covered buildings over 250,000 square feet must begin benchmarking their buildings no later than June 1, 2014 and each June 1 thereafter. No later than June 1, 2015, buildings between 50,000–250,000 square feet will have to begin benchmarking their buildings. Certain building types are excluded from the ordinance, such as where 10% or more of the building is used for industrial facilities, storage units, or certain hazardous uses. According to the city, the ordinance will apply to approximately 3,500 buildings.

In October 2009, Portland, Oregon adopted a climate action plan to reduce CO_2 emissions by 40% by 2030 and 80% by 2050, compared with 1990 levels. The plan calls for a number of initiatives to achieve this goal. For example, the city will strive to achieve zero GHG emissions in all new residential and commercial buildings, recover 90% of all solid waste generated, improve the energy efficiency of freight movement within the city, expand the urban forestry to cover one third of the city, and establish a tax credit for businesses that install green roofs and solar panels.[41]

In June 2010, the Montgomery County (Maryland) Council passed a countywide carbon tax. The tax charges $5 per ton for any stationary source that emits more than one million tons of CO_2 annually, effectively applying only to a 850-megawatt coal-fired power plant in the county. That same month, the plant filed a lawsuit challenging the tax, contending that the tax constitutes a bill of attainder and that it violates the *Fourteenth Amendment's* guarantee of equal protection and the *Eighth Amendment's* ban on excessive fines.[42]

Austin, Texas has enacted an ordinance which requires home sellers to purchase and supply energy audit reports to potential buyers. The city's Energy Conservation Audit and Disclosure (ECAD) ordinance applies to homes more than 10 years old within the Austin city limits that receive electric service from Austin Energy, a municipally owned utility company.[43] Homes required to comply with the ordinance include detached single-family homes, dwelling units in buildings with four or fewer units, and condominium units.[44] The ordinance also applies to some rental properties. Landlords of units in buildings with five or more dwelling units must provide energy audit reports to current and prospective tenants.[45]

In July 2011, the Carbon Disclosure Project released a report examining efforts taken by cities worldwide to address climate change.[46] The report, which was prepared in conjunction with the C40 Cities Climate Leadership Group, found that these cities are committed to addressing climate change by reducing GHG emissions and by addressing the effects of climate change.

For further discussion of the issues surrounding climate change and global warming, see *Chapter 1A*.

[4] Regional Greenhouse Gas Initiative

On December 20, 2005, following an initiative by New York Governor John Pataki to take steps against global warming in the region, seven states announced an agreement to implement the Regional Greenhouse Gas

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[40] The ordinance is available at *http://www.usgbc-illinois.org/wp-content/uploads/2013/06/Chicago-Energy-Use-Benchmarking-Ordinance-Substitute.pdf*.

[41] Additional information about Portland's climate action plan is available at *http://www.portlandonline.com/bps/index.cfm?c=49989&a=26861*.

[42] Mirant Mid-Atlantic LLC v. Montgomery County (D. Md., filed June 1, 2010).

[43] Austin, Tex., Code of Ordinances § 6-7-2.

[44] Austin, Tex., Code of Ordinances § 6-7-1(2), (7).

[45] Austin, Tex., Code of Ordinances §§ 6-7-1(5), 6-7-22.

[46] The report, entitled *CDP Cities 2011: Global Report on C40 Cities*, is available at *http://content.yudu.com/A1sdst/CDPCities2011/resources/index.htm?referrerUrl=*.

Initiative (RGGI). The governors of the participating states—Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York and Vermont—signed the RGGI's Memorandum of Understanding (MOU).[1] Massachusetts and Rhode Island were part of the negotiations, but declined to sign the agreement for reasons of cost. Those two states, as well as the District of Columbia, Pennsylvania, the Eastern Canadian Provinces, and New Brunswick, currently have the status of observers.[2] In 2011, New Jersey withdrew from the program.

The MOU outlined the framework for a Model Rule. The final Model Rule, which was developed in 2006, forms the basis for individual state statutory or regulatory proposals to implement the program. The agreement has been implemented as legislation or regulation by the participating states. The draft model rule for the original agreement was released on March 23, 2006 for public comment.[3] The 60-day period for public comment closed on May 22, 2006.

The goal of RGGI is the development of a multi-state cap-and-trade program. RGGI caps overall carbon dioxide emissions for power plants while allowing companies to trade emission permits known as "allowances" (as was done by the 1990 Clean Air Act amendment addressing SO_2 pollution). The participating states have all agreed to the binding caps. States issue one allowance for each ton of carbon dioxide emissions and, under the cap-and-trade approach, each plant must have sufficient numbers of allowances to cover its emissions. The program provides for a variety of offsets for emissions. These include applying efficiency efforts such as methane capture from landfills, farming, or natural gas emission facilities as well as hexafluoride gas leak detection of sulfur hexafluoride gas and their capture at electricity and transmission facilities. Offset projects can initially offset no more than 3.3% of a source's emissions, but there is flexibility in the program to account for increases in the cost of carbon allowances. Thus, up to 5% of plants emissions could be covered by offsets if the price of allowances rises above $7.00 per ton of emissions over a 12-month average.[4]

The draft Model Rule directly covers power generators and caps carbon dioxide levels at their 2009 measure until 2015, requiring a 10% reduction in greenhouse gases between 2015 and 2019. As described in the paragraph above, some flexibility is anticipated through the use of offset projects if the price of allowances continues to rise above the $7.00 per ton range. The Model Rule provides a number of examples of the percentage of the emissions that could be covered by offset projects. If the cost of allowance reaches $10.00 per ton for two consecutive 12-month periods, the source may cover 5% of its emissions with offsets for the first three years of the control period, and 20% of its emissions in the fourth, fifth, and sixth years. Although the plants covered by the agreement may seek offset projects outside the region, the draft creates substantial incentives for utilities to fund such projects within their own states. A 2:1 preference is established for projects undertaken within a participating RGGI state where the plant is located. A lower cap on emissions is imposed on any electric power generator that is fueled by fossil fuel and that provides at least 25 megawatts of power.[5]

The draft Model Rule sets forth certain incentives for alternative fuel sources. The rule proposes to exempt any power generator from the RGGI requirement if it burns bio-mass for more than 50% of its total fuel. Also exempted from the RGGI are power generators that supply less than 10% of their energy to the power grid.[6]

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[1] RGGI, Memorandum of Understanding in Brief, *available at* http://www.rggi.org/docs/mou_brief_12_20_05.pdf.

[2] Regional Greenhouse Gas Initiative, Participating States, available at http://www.rggi.org/states.htm.

[3] RGGI, Draft Model Rule, available at http://www.rggi.org/modelrule.htm.

[4] Regional Greenhouse Gas Initiative, Frequently Asked Questions, available at http://www.rggi.org/docs/mou_faqs_12_20_05.pdf.

[5] Regional Greenhouse Gas Initiative, Draft Model Rule, available at http://www.rggi.org/docs/summary_of_public_review_draft_mr.pdf.

[6] Regional Greenhouse Gas Initiative, Draft Model Rule, available at http://www.rggi.org/docs/summary_of_public_review_draft_mr.pdf.

The participating states have moved ahead with regulations or legislation to implement the multi-state agreement. Some states, such as New Hampshire, will need to enact legislation before they can undertake rulemaking to accord with the model rule. Other states, including New York, have proceeded directly to the rulemaking process after the model rule is finalized.[7] Information on upcoming state called meetings on the RGGI is available on the internet.[8]

RGGI constitutes a major commitment on the part of the member states. The reduction in greenhouse gas emissions planned for the cap-and-trade undertaking is quite substantial, especially considering the enormous amounts of greenhouse gas production in the area. Each state's initial base annual CO_2 emissions budget is as follows:

New York: 64,310,805 short tons.

New Jersey (withdrew from RGGI in 2011, but announced plans to rejoin in 2018): 22,892,730 short tons.

Connecticut: 10,695,036 short tons.

New Hampshire: 8,620,460 short tons.

Delaware: 7,559,787 short tons.

Maine: 5,948,902 short tons.

Vermont: 1,225,830 short tons.[9] Note that one short ton is equal to 2,000 pounds.

The following is a discussion of some of the key provisions of the draft Model Rule.

One important another aspect of the system is that it is highly automated, *i.e.*, monitoring of emissions is tied in directly into the system of allowances.[10]

General CO_2 budget permit requirements are discussed in detail in Subpart XX-3. The draft Model Rule notes that each state's permit requirements are likely be different because states have unique permitting requirements. A sample draft of more-or-less universal applicability is supplied.

Subpart XX-6.5, entitled "Compliance," covers the allowances that may be deducted for compliance with a CO_2 budget emissions limitation for a control period. For CO_2 offset allowances, the number that may be deducted can be no more than the number of tons representing specified percentages of the CO_2 budget source's CO_2 emissions for that control period as determined in accordance with Subpart 8.

Included in Subpart xx-8.5, "Recordkeeping and Reporting," are provisions for CO_2 Budget units that co-fire biomass.[11] The rule goes into some detail of the nature, chemical analysis, and moisture content of biomass, as well as other aspects of its characteristics. An elaborate formula is given for calculating the as-fired biomass CO_2 emissions factor for the CO_2 Budget unit.[12] The fuel sampling method and the fuel sampling technology are to be consistent with the consistent with the New York State Renewable Portfolio Standard Biomass Guidebook, 2005.

Subpart XX-10 of the draft Model Rule discusses CO_2 emissions offset projects. The regulatory agency will provide for the award of CO_2 offset allowances to sponsors of CO_2 emissions offset projects or CO_2 emissions credit retirements that have reduced or avoided atmospheric loading of CO_2 or CO_2 equivalent or sequestered carbon. The proposed rule further states that subject to the relevant compliance deduction limitations set forth

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[7] New York has already passed authorizing legislation in its State Assembly No. 3559, New York State Global Climate Change Reducation Act, April 4, 2005.

[8] *See* the schedule at http://www.rggi.org/statecalled-schedule.htm.

[9] Regional Greenhouse Gas Initiative, Memorandum of Understanding, *available at* http://www.rggi.org/docs/mou_12_20_05.pdf.

[10] *See* xx-1.2 and subpart xx-8, which is designed to interpret and convert individual output signals from pollutant concentration monitors and other parts of the monitoring system so as to produce a continuous record of the measured parameters of the units required for subpart xx-8.

[11] Public Review Model Rule Draft 03/23/06, Budget Trading Program, xx-8.5(d)(2).

[12] Public Review Model Rule Draft 03/23/06, Budget Trading Program, xx-8.5(d)(2)(ii).

in Subpart XX-6.5(a)(3), CO_2 offset allowances may be used by any CO_2 budget source for compliance purposes. The rule describes a variety of possible studies and projects, as well as different types of buildings and their heat retention or heat loss characteristics. Possible offsets include energy conservation measures, changes to facility equipment, modification to buildings and their maintenance procedures, software changes, and new means of training or managing users. Other offset possibilities involve the land's forested condition, its tree size and its forested stocking. Also referred to are different types of buildings, such as the clear zero net energy buildings (a building designed to produce as much energy as it is projected to use on an annual basis).[13]

Subpart XX-10.3 addresses the general requirements of CO_2 emissions offset projects. These include landfill methane capture and destruction; reduction in emissions of sulfur hexafluoride (SF_6); sequestration of carbon due to afforestation; reduction or avoidance of CO_2 emissions from natural gas, oil, or propane end-use combustion due to end-use energy efficiency; avoided methane emissions from agricultural manure management operations; and reduction in emissions of methane from natural gas transmission and distribution equipment.[14]

Subpart XX-10.3 (b) discusses eligible CO_2 emissions credit requirements. CO_2 offset allowances may be granted to the sponsor of a CO_2 emissions credit requirement that has satisfied all the applicable requirements. These CO_2 emissions offset allowances are tightly controlled under Subpart XX-10.3(d)'s General Additionality Requirements, which set forth strict conditions and requirements for the grant of such offset allowances.

Subpart XX-10.4 sets forth detailed application process requirements, including the establishment of a general account, application deadlines, the required contents of the application, where to file the application, and regulatory agency action.

Subpart XX-10.5 describes the standards that must be met for CO_2 emissions offset projects.

RGGI's CO_2 Auctions

RGGI held its first regional auction of CO_2 emissions allowances on September 25, 2008, with approximately 12.5 mmt of allowances selling at a clearing price of $3.07 per ton. New York, New Jersey, New Hampshire, and Vermont did not participate in the first auction due to incomplete state-level regulations. The second auction was held on December 17, 2008, and all 10 member states participated. The clearing price was $3.38. All 31.5 million tons of CO_2 allowances offered for sale were sold, yielding approximately $106.5 million in proceeds. Subsequent auctions have resulted in lower clearing prices. In September 2009, the clearing prices for allowances dropped to $2.19. In December 2009, the price dropped to $2.05 per allowance. In June 2010, the price dropped to $1.88 per allowance, close to the $1.86 price floor established under the cap-and-trade scheme.

In August 2010, RGGI released a report finding that emissions allowances decreased considerably in price over the first year of the program, with trading largely restricted to utilities subject to the regional cap on carbon dioxide emissions.[15] In September 2010, the price dropped to the floor price of $1.86 per allowance. For the first time, all of the RGGI allowances available for current use did not sell at auction. That same month, a report prepared by RGGI's market monitor, Potomac Economics, found that the volume of futures trading for RGGI allowances in the first quarter of 2010 dropped by 83 percent from the fourth quarter of 2009, a decline attributed to the recession, falling natural gas prices, and the subsequent decline in demand for electricity.[16]

In February 2011, RGGI released a report finding that RGGI states are spending 78 percent of the proceeds from carbon dioxide allowance auctions on energy efficiency, renewable energy, and programs to benefit energy consumers.[17] The report found that RGGI states have raised $789 million over the past two years from

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[13] Public Review Model Rule Draft 03/23/06, Budget Trading Program, XX-10.2(am).

[14] Public Review Model Rule Draft 03/23/06, Budget Trading Program, XX-10.3(a).

[15] This report is available at *http://www.rggi.org/docs/MM_2009_Annual_Report.pdf*.

[16] This report is available at *http://www.rggi.org/docs/MM_Secondary_Market_Report_2010_Q1.pdf*.

carbon dioxide allowance auctions, with $631 million going to various energy programs. In March 2011, RGGI announced that carbon dioxide allowances sold at RGGI's March 2011 auction were purchased for a clearing price of $1.89 per allowance, the floor price.[18]

In May 2011, New Jersey Governor Chris Christie declared that the state would withdraw from RGGI because the program is not effective in cutting CO_2 emissions and has contributed to higher energy prices. The remaining states stated that they will honor New Jersey allowances from years 2009–2011. In July 2012, Governor Christie vetoed legislation that would have required the state to participate in RGGI.[19] Several environmental groups filed a lawsuit challenging New Jersey's exit from RGGI, claiming that the withdrawal violated the state's procedural requirements for regulatory actions.[20] The New Jersey Superior Court, Appellate Division, agreed with Environment New Jersey and the Natural Resources Defense Council that the New Jersey Department of Environmental Protection (NJDEP) should have followed formal rulemaking procedures to repeal or amend regulations implementing the state's participation in RGGI. After Governor Christie announced in 2011 that the state would withdraw from RGGI's carbon dioxide cap-and-trade program, NJDEP did not initiate formal repeal procedures for its RGGI regulations but instead posted a notice on its website that as of January 2012, power plants would no longer be required to comply with the regulations' requirements. The appellate court rejected NJDEP's contention that it was not necessary to repeal the regulations because their only purpose was to implement New Jersey's participation in RGGI. The court determined that formal rulemaking was required because the regulations "are worded quite broadly and can be read to require action by [NJDEP] absent participation in a regional greenhouse program."[21] After a notice and comment rulemaking process, New Jersey formally repealed its RGGI regulations in August 2015.[22] In 2018, shortly after taking office, Governor Phil Murphy announced that New Jersey would rejoin RGGI.

In September 2011, RGGI announced that only 18 percent of the 42 million carbon dioxide allowances offered in a September 7, 2011 auction were sold, reflecting a continuing decline in demand.[23] The allowances, which are available for immediate use, were purchased at the minimum reserve price of $1.89 each by 31 entities. Ninety-four percent of the allowances sold were bought by electricity generators or their corporate affiliates. For the first time since RGGI began its auctions, none of the allowances available for use after 2012 was purchased.

Also in September 2011, RGGI released a report finding that there was no so-called "emissions leakage" during the first year of RGGI despite concerns over the issue since the cap-and-trade program was created in 2005.[24] "Leakage" is used to describe a shift of electricity generation from sources within the RGGI region that are covered by the carbon dioxide cap to those outside of the region that are not covered by the cap or to smaller facilities within the region that are not covered by the cap. Leakage was considered a particular concern in the three RGGI states covered by PJM Interconnection—New Jersey, Maryland, and Delaware—because the non-RGGI states in PJM have significant coal-fired generation capacity. The report found that carbon dioxide emissions declined in 2009 from electricity generators that serve the 10-state RGGI region, but are not subject to the RGGI cap. According to the report, carbon dioxide emissions from non-RGGI generators that serve the RGGI region declined by 3.8 percent from 2008 to 2009 and by 18 percent when compared with the 2006–2008

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[17] This report is available at *http://www.rggi.org/docs/Investment_of_RGGI_Allowance_Proceeds.pdf*.

[18] Information regarding the March 2011 auction is available at *http://rggi.org/docs/Auction_11_Release_Report.pdf*.

[19] S. 1322.

[20] *In re* Regional Greenhouse Gas Initiative, No. A-4878-11 (N.J. Super. Ct. App. Div., filed June 2012).

[21] *In re Regional Greenhouse Gas Initiative (RGGI), 2014 N.J. Super. Unpub. LEXIS 644 (N.J. Super. Ct. App. Div. Mar. 25, 2014)*.

[22] 47 N.J.R. 1937(a) (Aug. 3, 2015).

[23] RGGI's announcement is available at *http://www.rggi.org/docs/Auction_13_Release_Report.pdf*.

[24] The report is available at *http://www.rggi.org/docs/Elec_monitoring_report_11_09_14.pdf*.

baseline period. The report also found that carbon dioxide emissions from RGGI generators declined by 18.4 percent from 2008 to 2009 and by 23.1 percent from the baseline period of 2006–2008. Total electric generation by non-RGGI sources serving the RGGI region increased by 0.4 percent from 2008 to 2009. In addition, total electric generation by RGGI sources in the region decreased by 9.1 percent from 2008 to 2009. Electricity demand in the RGGI region declined by 3.7 percent from 2008 to 2009. The report is the first in a series on leakage that was required by the 2005 memorandum of understanding between the RGGI states.

In January 2012, RGGI announced that seven of the nine participating states intend to retire 87 million carbon dioxide emissions allowances that were not sold during the past six auctions. The retirement of the allowances was announced by RGGI in a notice for its March 14, 2012 auction. According to the notice, the 87 million allowances will be retired in a manner consistent with each state's independent legal authority and state-specific process. The retired allowances were offered for sale during the auctions comprising RGGI's 2009–2011 control period. Retiring the allowances means they will not be available for resale to utilities within the regional initiative.

That same month, Environment Northeast released a report which found that carbon dioxide emissions in 2011 in states participating in RGGI were far below the regional cap set by the program and are expected to stay below the cap for the foreseeable future.[25] According to the report, emissions from power plants in RGGI states in 2011 were expected to be 34 percent below the 188 million tons-per-year cap set by the program. Furthermore, projected emissions of 124 million tons per year for 2011 would be the lowest since the program began in 2009. The report included actual emissions data for the first three quarters of 2011 and projected emissions data for the full year because final data will not be available until mid-2012. The program originally planned to keep the emissions cap at 188 million tons through 2014 and then lower it by 2.5 percent per year over the next four years. The report attributed the lower emissions to declines in oil-and coal-fired electricity generation, increased generation from natural gas and renewable energy, and energy-efficiency programs.

Concurrent with this report, RGGI undertook a comprehensive review of the program, including the level of the emissions cap. RGGI originally planned to keep the emissions cap at 188 million tons through 2014 and then lower it by 2.5 percent per year over the next four years, but a variety of factors have caused emissions to fall far below the cap, including the recession and a drop in natural gas prices that shifted utilities away from carbon-intensive coal, among other things. Connecticut, Delaware, Massachusetts, New York, Rhode Island, and Vermont will retire 67.6 million allowances, while Maryland has proposed regulatory changes to allow it to retire 19.7 million allowances.

In April 2012, Environmental Northeast released a report finding that RGGI has generated significant economic benefits in participating states, and those states could benefit even more under an improved program.[26] According to the report, proceeds from RGGI allowance auctions are reinvested in energy-efficiency programs, which generate direct employment. In addition, savings on electricity at the household and wholesale levels free up money that can be spent in local economies rather than on imported power. The report finds that through April 2012, the auctions of allowances have generated just over $1 billion in revenue. This puts the program on track to add over $1.7 billion in net value to state economies. The report also projects that this increase in growth will generate over 17,100 job-years of employment across the states' economies. The report indicates that if the member states take action to amend the program to account for decreased emissions by resetting the cap at current emissions levels, and use revenue to support clean energy and consumer programs, RGGI could generate an additional $4.7 billion from 2012 to 2020 to invest in programs that could add $11.6 billion in value to state economies and over 82,000 job-years.

In May 2012, RGGI released a series of possible changes to its cap-and-trade program, including changes in its offset requirements, auction design, and the control period for reducing carbon dioxide emissions.[27] The

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[25] The report is available at http://env-ne.org/public/resources/pdf/ENE_RGGI_Emissions_Report_120110_Final.pdf.

[26] The Environmental Northeast report is available at http://www.env-ne.org/public/resources/ENE_RGGI_Economic_Benefits_20120426.pdf.

[27] The RGGI request for stakeholder comments on its program review is available at http://www.rggi.org/docs/Stakeholder_Materials_2012_05_21.pdf.

major proposed change is lowering the emissions cap in 2014 by approximately 45%, from 165 mmt to 91 mmt. The reduced emissions cap is consistent with current emissions levels and would theoretically reinvigorate the trading program since emissions from regulated sources would collectively reach the cap. The proposed amendments would leave in place a provision that would reduce the cap by 2.5% annually from 2015 to 2020 to further encourage emission reductions. In addition, the program is considering a number of possible changes to the current provisions that allow electric generators to offset their emissions with projects like forestation and end-use energy efficiency. Under current provisions, the program has received no applications for offset projects. Among the potential changes under consideration are expanding the categories of projects eligible for offsets, simplifying the offsets process, increasing the amount of carbon dioxide allowances that can be offset, and expanding the permissible geographic locations for projects. Other potential changes proposed in the report include creation of a reserve of allowances to provide the program with greater flexibility, replacement of the current three-year control period with a one-year control period, and use of a new mechanism for setting the minimum reserve price for CO_2 allowances.

On July 2, 2012, the program announced that it would delay any changes until at least the end of 2012. The key item under review is the carbon dioxide emissions cap and whether it should be lowered. Current emissions are already well below the 188 million-ton cap set by the program. RGGI originally planned to keep the emission cap at 188 million tons through 2014 and then lower it by 2.5 percent per year over the next four years. According to RGGI, it expects that its participating states will initiate state-specific actions such as enactment of legislation or promulgation of regulations sometime after November 2012 under the new schedule.

In November 2012, RGGI issued a report concluding that the proceeds from emissions allowances at RGGI auctions will generated an estimated $1.3 billion in lifetime energy savings and avoid 12 million tons of carbon dioxide emissions.[28]

In February 2013, RGGI released a model rule that included a 45% reduction in the regional cap.[29] The new cap would limit CO_2 emissions in the region to 91 million tons in 2014 and then lower them by 2.5% per year from 2015 to 2020. The rule contains a number of significant changes to the program, including the creation of a cost containment reserve to keep CO_2 emission allowance prices from rising above a certain level, and an adjustment for the unused allowances that have been banked by generators over the past four years. According to RGGI, the model rule is designed to guide the nine RGGI states as they proceed with their own statutory or regulatory process for adoption.

In March 2013, RGGI held its first auction since its announcement of a tighter cap. Allowances sold for $2.80 each, a 45% increase from the previous four auctions and $.82 above the minimum auction price of $1.98.[30] In June 2013, RGGI announced that 38.7 million allowances were sold for $3.21 each, 14% higher than the previous $2.80 clearing price. All allowances offered at the auction were sold.[31]

In June 2013, RGGI issued a report which found that there was no emissions leakage in the first three years of the program as a result of electricity generated by non-RGGI sources.[32] “Emissions leakage” is a term used to describe the purchasing of electricity by electricity generators from non-RGGI sources to avoid having to purchase CO_2 allowances. The report found that there was no increase in CO_2 emissions in the 10-state RGGI region[33] from 2009 to 2011 from non-RGGI sources when compared to the period from 2006 to 2008. Non-

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[28] The report, entitled *Regional Investment of RGGI CO2 Allowance Proceeds, 2011*, is available at http://www.rggi.org/docs/Documents/2011-Investment-Report.pdf.

[29] The model rule is available at http://www.rggi.org/design/program_review.

[30] The auction results are available at http://www.rggi.org/docs/PR031513_Auction19.pdf.

[31] Information about this auction is available at http://www.rggi.org/docs/Auctions/20/PR060713_Auction20.pdf.

[32] The report is available at http://www.rggi.org/docs/Documents/Elec_monitoring_report_2011_13_06_27.pdf.

RGGI sources include net imports from states outside of the RGGI region and sources within the region that do not use fossil fuels.

In September 2013, RGGI announced that 38.4 million allowances were sold at a clearing price of $2.67 per allowance, 17% lower than the June 2013 auction. Bids were submitted for two times the number of allowances available. In December 2013, RGGI announced that 38.3 million allowances were sold at a clearing price of $3 per allowance.[34]

In December 2013, the nine participating RGGI states submitted comments to EPA recommending that the agency use RGGI as a guide for forthcoming federal rules to reduce CO_2 emissions from power plants.[35] The comments stated that EPA rules under the Clean Air Act should allow states to demonstrate compliance on a regional and multiyear basis and should adopt an approach that applies to the energy system as a whole, permitting the use of energy efficiency, renewable power, and add-on controls as they become available. The states also urged EPA to ensure equitable treatment to early moves so that states that have already made reductions in CO_2 emissions do not face inequitable or disproportionate burdens from the rules.

Professor Grad's Commentary

Making RGGI function properly will require a high degree of interstate cooperation. To create the interstate cooperation necessary to make the RGGI system work, it will be necessary for all of the member states to pass closely parallel laws or regulations.

It is clear that the draft Model Rule includes more than the requirements of a cap-and-trade system. The Model Rule will also compel the participant states to examine alternative environmental controls to counteract the discharge of greenhouse gases as well as to regulate and reduce the discharge of greenhouse gases by industry and agriculture. The participant states will also be compelled to look into natural systems of greenhouse gas control or prevention, such as reforestation.

For further discussion of the issues surrounding climate change and global warming, see *Chapter 1A*.

[5] California Global Warming Solutions Act of 2006

[a] California Clears Path to Addressing Global Warming

Touted as the first global warming related legislation in the country, the California Global Warming Solutions Act of 2006 (AB 32) was signed by Governor Arnold Schwarzenegger on September 27, 2006. It is clear that the California legislation—as well as the regional greenhouse gas initiative adopted in December of 2005 (*see* *§ 2.04[4]*)—are state reactions to the failure of the national government and the Bush Administration to face up to the global warming problem. California has long been a trailblazer with respect to automotive emissions, with its regulations predating federal automotive regulations. It has been a leader in other pollution control areas as well, and its legislation has often served as a model for other jurisdictions' efforts on the domestic and international level. The California Global Warming Solutions Act of 2006 thus takes on an enormous degree of significance.[1]

In brief, under the Act, the California Air Resources Board (CARB) is required to adopt a statewide greenhouse gas emissions limit equivalent to greenhouse gas emissions levels in 1990 by 2020. The Act

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[33] The "10-state RGGI region" consists of Delaware, Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. As noted earlier in this section, New Jersey withdrew its agreement to the RGGI Memorandum of Understanding effective January 1, 2012.

[34] Information about these auctions is available at *http://www.rggi.org/docs/Auctions*.

[35] These comments are available at *http://www.rggi.org/docs/RGGI_States_111d_Letter_Comments.pdf*.

[1] *Cal. Health & Safety Code § 38500 et seq.* The legislation (Assembly Bill No. 32) can be found at *http://www.legislature.ca.gov/cgi-bin/port-postquery?bill_number=ab_32&sess=CUR&house=B&author=nunez*.

authorizes a market trading program based on an allowance of carbon dioxide produced by the source. The trading program is scheduled to be in effect from 2012 to 2020. To establish 1990 levels, the agency will use the best available scientific, technological and economic information on greenhouse gas emissions. A *de minimis* threshold of greenhouse gas emissions will be set. To extend the reach of the legislation, on October 1, 2006, Governor Arnold Schwarzenegger signed an executive order linking California's program to the Regional Greenhouse Gas Initiative (*see* *§ 2.04[4]*) in the Northeast and similar efforts in Europe.[2]

CARB is the state agency responsible for monitoring and regulating GHG emission sources under AB 32, and the details of the bill will be developed through CARB's rule-making process. Detailed regulations were adopted by CARB on January 1, 2011 and went into effect on January 1, 2012. CARB has been vigorously pursuing implementation of this enactment.

In October 2010, CARB issued draft rules establishing a statewide greenhouse gas cap-and-trade program beginning on January 1, 2012.[3] These draft rules establish a phased in compliance framework designed to reduce the state's emissions to approximately 15% below 2012 levels by 2020. CARB anticipates that the program will cover 85% of the state's greenhouse gas emissions. CARB's rules will apply to businesses in the state with reported or verified annual emissions exceeding 25,000 metric tons (mt) of carbon dioxide equivalents (CO_2e). During the initial 2012–2015 period, the program will cover emissions from large industrial sources and electrical generating facilities. Beginning in 2012, the program covers emissions from "first deliverers" of electricity, which include electricity-generating facilities located within California as well as entities that import electricity from out-of-state sources into California. Beginning in 2015, fuel distributors with annual emissions exceeding the threshold will be included in the program. In 2012, CARB set the cap at the level of emissions forecast for that year for covered sources during the initial period. The cap will decline approximately 2% per year between 2012 and 2014, and approximately 3% per year beginning in 2015. Each year, CARB will distribute emission allowances equal to the declining cap. During the first few years of the program, CARB has proposed allocating most of the allowances for free. CARB's proposed rules establish a limited offset program—covered entities will be able to meet up to 8% of their compliance obligation via offset credits—and will initially permit offsets from four types of programs: forestry, urban forestry, livestock (i.e., methane), and removing existing stock of ozone-depleting substances.

On November 2, 2010, California voters defeated Proposition 23, which would have stayed the enactment of AB 32 until unemployment in the state fell below 5.5 percent for one year.

In January 2011, a California state court issued a tentative ruling concluding that CARB failed to adequately consider alternatives to cap-and-trade and other climate programs under the law.[4] The court rejected plaintiffs' claims that the scoping plan failed to comply with the statutory requirements of AB 32 and that under the California Environmental Quality Act (CEQA), CARB was required to provide a detailed environmental analysis of each of the measures and programs prescribed by the scoping plan. However, the court accepted plaintiffs' claims that the analysis CARB provided was lacking facts and data to support the agency's conclusions in its environmental document. In March 2011, the court issued a final order enjoining the state from implementing its cap-and-trade program.[5] In June 2011, a state appellate court granted CARB's request for a stay of the injunction. In September 2011, the California Supreme Court rejected the petition by plaintiffs to grant a temporary stay of CARB's implementation of AB 32 pending the

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[2] Scott, *Schwarzenegger Issues Executive Order Linking California With Other Trading Schemes*, Env't Rep. (BNA) 2146 (Oct. 20, 2006).

[3] The draft rules are available at *http://www.arb.ca.gov/regact/2010/capandtrade10/capandtrade10.htm*.

[4] Association of Irritated Residents v. California Air Resources Board, Case No. CPF-09-509562 (S.F. Co. Jan. 24, 2011). A copy of the decision is available at *http://cdn.law.ucla.edu/SiteCollectionDocuments/Environmental%20Law/AIR%20v%20ARB%20Tentative%20Ruling.pdf*.

[5] A copy of the final order is available at *http://www.latimes.com/media/acrobat/2011-03/60311754.pdf*.

plaintiffs' appeal of the June 2011 decision. On October 20, 2011, CARB approved cap-and-trade regulations.[6] These regulations are discussed below at *§ 2.04[5][g]*.

In April 2013, CARB voted 5–0 in favor of joining its cap-and-trade system with Quebec's trading system beginning January 1, 2014.[7]

[b] Overview of California Global Warming Solutions Act of 2006

The Global Warming Solutions Act of 2006—known as AB-32—is codified in California's Health and Safety Code, Division 25.5, commencing with § 38500. The following brief summary of the new legislation is adapted from the California Legislative Counsel's Digest.

The Digest begins by noting that the State Air Resources Board, the State Energy Resources Conservation and Development Commission, and the California Climate Action Registry all have responsibilities with respect to the control of emissions of greenhouse gases, and the Secretary for Environmental Protection is required to coordinate activities relating to the reductions of greenhouse gases and climate change.

Instead of setting forth detailed emission levels, the Act requires California's Air Resources Board to adopt regulations to require the reporting and verification of statewide greenhouse gases emissions and to monitor and enforce this program. The Board must adopt a statewide greenhouse gases emissions limit equivalent to the 1990 emissions level, to be achieved by 2020. The Board is charged with adopting rules and regulations in an open public process to achieve the maximum technologically feasible and cost effective greenhouse gases emission reductions. The Act also authorizes the Board to adopt market-based compliance mechanisms meeting specified requirements, and to adopt a schedule of fees to be paid by regulated sources of greenhouse gases emissions.

The Act also creates a state-mandated local program of enforcement, including civil, criminal, and injunctive penalties.

[c] Legislative Findings

Part 1 of the California Global Warming Solutions Act of 2006 is entitled "General Provisions." Chapter 2 contains the legislative finding that global warming poses a serious threat to California's economy, public health, and natural environment. Adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to the natural environment, and an increase in human health problems. Global warming also has detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry. It will also increase the strain on electricity supplies necessary to meet the demand for summer air conditioning.

After explaining the adverse impacts of global warming, the declaration points out that California has long been a leader with respect to energy conservation and other environmental efforts. The new law continues this tradition.

National and international actions are cited as necessary to address the issue of global warming. The program established by the Act will enable California to position itself at the forefront of worldwide efforts to reduce greenhouse gases.

The Act makes it clear that it is the legislature's intent that the State Air Resources Board coordinate with state agencies, as well as consult with the environmental justice community, industry sectors, business groups, academic institutions, environmental organizations, and other stakeholders in implementing the law. It is also the intent of the legislature that the Board consult with the Public Utilities Commission in the development of emissions reduction. This is to ensure that electricity and natural gas providers are not subject to duplicative or inconsistent regulatory requirements. The legislature also intends that the Board

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[6] A fact sheet about these regulations is available at *http://www.arb.ca.gov/newsrel/2011/cap_trade_overview.pdf*.

[7] CARB documents on this agreement are available at *http://www.arb.ca.gov/cc/capandtrade/linkage/linkage.htm*.

design emissions reduction measures to meet the statewide emissions limits for greenhouse gases in a manner that minimizes costs and maximizes benefits for California's economy. Moreover, the legislature expects the Climate Action Team established to coordinate the efforts set forth under Executive Order S-3-05 to continue its role in coordinating overall climate policy.[8]

[d] Definitions of Basic Terms of California Global Warming Solutions Act of 2006

The broad and impressive statements of findings and declarations of legislative policy in Chapter 2 are followed by definitions relating to the technical features of the law. For example, the term "allowance" is defined to mean an authorization to emit, during a specified year, up to one ton of carbon dioxide equivalent.[9] Because the California Global Warming Solutions Act of 2006 contains no detailed provisions relating to process or technological changes to reduce greenhouse gases emissions, the precision and accuracy of the definitions found in Chapter 3 are particularly significant. The definitions also provide some insight into the Act's operation in the future.

"Alternative compliance mechanism" means an action undertaken by a greenhouse gas emission source that achieves the equivalent reduction of greenhouse gas emissions over the same time period as a direct emission reduction, and that is approved by the state board. "Alternative compliance mechanism" includes, but is not limited to, a flexible compliance schedule, alternative control technology, a process change, or a product substitution.[10]

"Carbon dioxide equivalent" means the amount of carbon dioxide by weight that would produce the same global warming impact as a given weight of another greenhouse gas, based on the best available science, including from the Intergovernmental Panel on Climate Change.[11] "Direct emission reduction" means a greenhouse gas emission reduction action made by a greenhouse gas emission source at that source.[12] "Greenhouse gas" or "greenhouse gases" includes all of the following gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexaflouride. "Greenhouse gas emissions limit" means an authorization, during a specified year, to emit up to a level of greenhouse gases specified by the state board, expressed in tons of carbon dioxide equivalents.[13]

"Greenhouse gas emission source" or "source" means any source, or category of sources, of greenhouse gas emissions whose emissions are at a level of significance, as determined by the state board, that its participation in the program established under this division will enable the state board to effectively reduce greenhouse gas emissions and monitor compliance with the statewide greenhouse gas emissions limit.[14]

"Market-based compliance mechanism" means either of the following: (1) A system of market-based declining annual aggregate emissions limitations for sources or categories of sources that emit greenhouse gases; (2) Greenhouse gas emissions exchanges, banking, credits, and other transactions, governed by rules and protocols established by the state board, that result in the same greenhouse gas emission reduction, over the same time period, as direct compliance with a greenhouse gas emission limit or emission reduction measure adopted by the state board pursuant to this division.[15]

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[8] ***Cal. Health & Safety Code § 38501***.

[9] *Cal. Health & Safety Code § 38505(a)*.

[10] *Cal. Health & Safety Code § 38505(b)*.

[11] *Cal. Health & Safety Code § 38505(c)*.

[12] *Cal. Health & Safety Code § 38505(e)*.

[13] *Cal. Health & Safety Code § 38505(h)*.

[14] *Cal. Health & Safety Code § 38505(i)*.

[15] *Cal. Health & Safety Code § 38505(k)*.

[e] Role of State Air Resources Board

Chapter 4 defines the State Air Resources Board as the agency charged with monitoring and regulating sources of emissions of greenhouse gases that cause global warming.[16]

Under Part 2 of the California Global Warming Solutions Act of 2006, the State Board is vested with the duty of adopting regulations to require the reporting and verification of statewide greenhouse gases emissions and to monitor and enforce the program. The regulations must require the monitoring and annual reporting of emissions from greenhouse gases emission sources beginning with the sources or categories of sources that contribute the most to statewide emissions. The regulations must also account for greenhouse gases emissions from all electricity consumed in the state, including transmission and distribution line losses from electricity. To the extent feasible, the regulations must incorporate the standards and protocols developed by the California Climate Action Registry, established pursuant to Chapter 6 of the Act. Entities that voluntarily participated in the Registry prior to December 31, 2006 and developed a greenhouse gases emission reporting program will not be required to significantly alter their reporting or verification program, except as necessary to provide for complete, verifiable reporting. The State Board must also periodically review and update its emission reporting requirements, as well as review existing and proposed international, federal, and state greenhouse gases emission reporting programs so as to encourage consistency among the programs and streamline reporting requirements.[17]

Part 3 of the Act requires the State Air Resources Board to set the statewide greenhouse gases emissions limit. To do so, the Board must determine what the statewide greenhouse gases emissions level was in 1990, and establish and approve in a public hearing a limit that is equivalent to that 1990 level. This limit must be achieved by 2020. To ensure that it makes the most accurate determination feasible, the Board must evaluate the best available scientific, technological, and economic information to support the 1990 level of greenhouse gases emissions.[18] The statewide greenhouse gases emissions limits will remain in effect unless otherwise amended or repealed. The Board is also directed to make recommendations to the Governor and the legislature on how to continue reductions of greenhouse gases emissions beyond 2020.[19]

Part 4 of the California Global Warming Solutions Act of 2006, entitled “Greenhouse Gas Emissions Reductions,” directs the State Board to adopt rules and regulations to achieve the maximum technologically feasible and cost effective greenhouse gases emission reductions from sources or categories of sources. The Board is to make public a list of early action greenhouse gases emission reduction measures before June 30, 2007. On or before January 1, 2010, the Board must adopt regulations to implement the measures identified on the list. The regulations must achieve the maximum technologically feasible and cost effective reductions in greenhouse gases emissions from those sources or categories of sources, and are to be enforceable no later than January 1, 2010.[20]

[f] Scoping Plan

It must be noted that except for the target dates, there is little in Part 4 of the Act setting forth exactly how the particular maximum technologically feasible and cost effective reductions are to be achieved. *California Health & Safety Code § 38561* does provide that on or before January 1, 2009, the State Board “shall prepare and approve a scoping plan, as that term is understood by the state board, for achieving the maximum technologically feasible and cost effective reductions in greenhouse gases emissions from

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[16] *Cal. Health & Safety Code § 38510*.

[17] *Cal. Health & Safety Code § 38530*.

[18] *Cal. Health & Safety Code § 38550*.

[19] *Cal. Health & Safety Code § 38551*.

[20] *Cal. Health & Safety Code § 38560.5*.

sources or categories of sources of greenhouse gases by 2020 under this division." Section 38561 continues on to require the Board to consult with all state agencies with jurisdiction over sources of greenhouse gases on all elements of its plan that pertain to energy-related matters, such as electrical generation, load based-standards or requirements, and statewide fuel supplies. By adding this provision, the legislature attempted to ensure that the Board's greenhouse gas emissions reduction activities will be nonduplicative and efficiently implemented.

The portion of § 38561 quoted above is somewhat unusual in its "scoping plan," but it is clear that the legislature wants the Board to involve all of the stakeholders in contributing constructively to the regulatory and standards setting of the process. Calls for scoping plans are not commonplace. The most effective scoping plan that comes to mind is the requirement for "scoping" in the regulations promulgated by federal regulations to guide the preparation of environmental impact statements required by NEPA. In that context, scoping is required to define focus and provide for the coverage of environmental impact statements to analyze the environmental impact of proposed federal projects. "Scoping" is considered to be a necessary device to define and limit coverage of impact statements, just as "scoping" by the State Board is considered necessary to achieve the maximum technologically feasible and cost effective reduction in greenhouse gases from sources.

The statutory requirements for the scoping plan are straightforward. The State Board is required to consider greenhouse gas emissions reduction programs in other areas, including the northeastern states of the United States, Canada, and the European Union.[21] The reference to "the northeastern states of the United States" is clearly a mandate to examine the plans and requirements proposed by the interstate agreement on greenhouse gas emissions reductions (*see* *§ 2.04[4]*). The Board is also to analyze the plan's total potential costs and benefits—economic and otherwise—to the state's economy, environment, and public health. Potential adverse effects on small businesses are also part of the equation. The Board must recommend a de minimis threshold of greenhouse gas emissions.[22]

In developing the scoping plan, the State Board is to identify opportunities for emission reductions measures by voluntary actions, such as carbon sequestration projects and best management practices. Interested parties will be given the opportunity to comment on the plan through public workshops. The Board must update its plan for achieving the maximum technologically feasible and cost-effective reductions at least every five years.[23]

[g] Regulations Setting Forth Greenhouse Gas Emissions Limits and Reductions

There clearly is an endpoint for the scoping process, because the deadline for adopting regulations for greenhouse gas emission limits and reduction measures is January 1, 2011.[24] As of this writing, the details of the regulations which will set forth how to achieve the limits are in the making as a result of the scoping effort. The owners and operators of industries and activities to be covered by these forthcoming regulations will have to comply with them by January 1, 2012.

In adopting regulations under § 38652 and Part 5 of the California Global Warming Solutions Act of 2006 and in achieving the statewide greenhouse gas emissions limit, the State Board is subject to the following cautionary requirements. The regulations must be equitable, minimizing costs and maximizing the total benefits to the state. The Board must ensure that compliance efforts do not disproportionately impact low-income communities. Entities that have voluntarily reduced their greenhouse gas emissions prior to the implementation of these regulations must receive "appropriate" credits. The Board must also ensure that activities undertaken pursuant to the regulations do not interfere with efforts to achieve and maintain federal

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[21] *Cal. Health & Safety Code § 38561(c)*.

[22] *Cal. Health & Safety Code § 38561(e)*.

[23] *Cal. Health & Safety Code § 38561(h)*.

[24] ***Cal. Health & Safety Code § 38562***.

and state ambient air quality standards and standards to reduce toxic air contaminant emissions. The regulations must be cost-effective and not create undue administrative burden. The Board is directed to "minimize leakage," although the precise meaning of this subsection is unclear. The regulations, when promulgated, may shed some light on this issue.[25]

Subsection (c) of Health & Safety Code § 38562 confers on the Board the authority to adopt a regulation establishing "a system of market-based declining annual aggregate emission limits for sources or categories or sources that emit greenhouse gas emissions, applicable from January 1, 2012, to December 31, 2020, inclusive, that the state board will achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions, in the aggregate, from those categories of sources."

For regulations pursuant to Part 5, commencing with Health & Safety Code § 38570, the reduction must be in addition to any greenhouse gas emission reduction otherwise required by law and any other such reduction that otherwise would occur.[26] Subsections (e), (f), and (g) of § 38562 appear to be designed to avoid duplicative requirements, but subsection (g) adds that after January 1, 2011, the Board may revise or adopt additional regulations to further the provisions of this division.

Section 38563 is a cautionary provision pointing out that the State Board is not restricted from adopting greenhouse gas emission limits or reduction requirements prior to January 1, 2011, imposing those limits or measures prior to January 1, 2012, or providing early reduction credit.

On October 20, 2011, CARB approved cap-and-trade regulations.[27] The program will cover 360 businesses operating some 600 facilities in California that together emit 85 percent of the state's GHGs. Beginning in 2013, any industrial source and any electric utility that emits more than 25,000 metric tons of GHGs per year will be required to participate in the cap-and-trade program. In 2015, distributors of transportation fuels, natural gas, and other fuels will join the program. These entities are referred to in the cap-and-trade regulations as "covered entities." CARB will issue "allowance" certificates that authorize the holder to emit a fixed amount of GHGs. CARB has capped the total number of allowance certificates that will be issued for any given year. A key feature of the program is that this cap will steadily decline through 2020. As the cap declines each year, the number of allowances will decrease and companies will have to find ways to reduce emissions at their own facilities and/or purchase offset credits. For 2013, CARB will initially allocate 90 percent of the allowance certificates to covered entities for free. The covered entities can then sell these certificates or purchase additional certificates at auction. At each auction, CARB will sell part of the remaining allowances for current and future years. Companies that generate GHG reductions beyond what is required by law can sell offset credits. Disclosure requirements and agency enforcement are intended to assure the integrity of the marketplace for allowances. To ensure price stability, CARB will maintain a certain number of allowance certificates in reserve. Allowance certificates from this reserve will be sold when the auction price exceeds a certain threshold. That threshold is $10 per allowance (one metric ton of emissions) for auctions conducted in 2012 and 2013. Similarly, to prevent monopolies, the regulations prohibit any single company from holding more than a set number of allowances at any time. The regulations also include stiff penalties and fines for non-compliance.

In November 2012, the state held its first cap-and-trade auction.[28] CARB reported that all 23.1 million GHG emissions allowances were sold for $10.09, slightly higher than the state's $10 floor price, raising approximately $233 million. According to CARB, entities subject to the cap-and-trade program purchased 97 percent of the allowances. In February 2013, CARB held a second auction and announced that the settlement price for the 12.9 million allowances, which can be used until 2020, was $13.62, exceeding the $10.71 floor price that was set for 2013. In May 2013, a third auction was held, with allowances sold for $14.00, a slight increase from the February auction.

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[25] ***Cal. Health & Safety Code § 38562(b)***.

[26] ***Cal. Health & Safety Code § 38562(d)(2)***.

[27] A fact sheet about these regulations is available at *http://www.arb.ca.gov/newsrel/2011/cap_trade_overview.pdf*.

[28] Results of the auction are available at *http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm*.

[h] Market-Based Compliance Mechanisms

Part 5 of the California Global Warming Solutions Act of 2006 law provides for market-based compliance mechanisms. Health & Safety Code § 38570 authorizes the State Board to include in the general regulations adopted pursuant to § 38562 the use of market-based compliance mechanisms to comply with the regulations. Prior to including such mechanism, the Board is required to consider its impact on, for example, communities already adversely impacted by air pollution. Any market-based compliance mechanism should be designed to prevent any increase in the emissions of toxic air contaminants or criteria of air pollutants, and should maximize environmental and economic benefits for California. The Board must adopt regulations providing how regulated entities that are already subject to greenhouse gas emission limits and mandatory emission reporting requirements shall use such market-based compliance mechanisms to achieve compliance.

Health & Safety Code § 38571 requires the State Board to adopt methods for the quantification of voluntary greenhouse gas emission reductions. The regulations should verify and enforce any voluntary greenhouse gas emission reductions that are authorized by the Board.

[i] Enforcement of California Global Warming Solutions Act of 2006

Methods for enforcing the California Global Warming Solutions Act of 2006 are set forth in Part 6. The State Board is charged with compliance with all rules, regulations, and other measures under the Act.[29] The penalty provisions are adapted from existing provisions of the Health & Safety Code and offer a great deal of elasticity. Any violation may be enjoined pursuant to § 41513. Violations are also subject to the penalties set forth in Article 3 of Chapter 4 of Part 4, and Chapter 1.5 of Part 5 of Division 26. Any violation is deemed to result in an emission of an air contaminant for the purposes of these penalty provisions. The Board may develop a method to convert a violation of any measure into the number of days in violation, where appropriate, for the purposes of the penalty provisions mentioned above. Section 42407 and subdivision (i) of Section 42410 do not apply to this part.

[j] Miscellaneous Provisions

Part 7, entitled “Miscellaneous Provisions,” addresses a number of afterthoughts and gaps in the California Global Warming Solutions Act of 2006. Health & Safety Code § 38590 provides that if the regulations adopted pursuant to Section 43018.5 do not remain in effect, the State Board must implement alternative regulations to control mobile sources of greenhouse gas emissions to achieve equivalent or greater reductions. Section 38591(a) requires the Board to convene an “environmental justice advisory committee” to assist it in developing the scoping plan and other matters of implementation by July 1, 2007. The specific requirements of the advisory committee are set forth in the subsection. Section 38591(d) requires the Board to appoint an “Economic and Technology Advancement Advisory Committee” to advise it on implementation of technological research and developments related to the greenhouse gas emission reductions.

Section 38592 requires all state agencies to consider implementation of strategies to reduce their greenhouse gases, and clarifies that the Act does not relieve any individual or entity from compliance with other applicable federal, state, or local laws. Other sections of Part 7 make it clear that the authority of the Public Utilities Commission and utilities’ obligation to provide safe and reliable electric service remain unchanged by the Act.[30] Also, the provisions of these divisions are severable.[31] The Board is authorized to adopt a schedule of fees to be paid by the sources of greenhouse gases emissions.[32]

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[29] *Cal. Health & Safety Code § 38580(a)*.

[30] *Cal. Health & Safety Code § 38593*.

[31] *Cal. Health & Safety Code § 38596*.

[32] *Cal. Health & Safety Code § 38597*.

Finally, the legislature has vested the Governor with the authority to adjust the applicable deadlines for an initial period of up to one year in the event of extraordinary circumstances, catastrophic event, or threat of significant economic harm.[33]

The California greenhouse gas laws and regulations appear to be working. In January 2013, CARB announced that GHG emissions from California's industrial sources decreased in 2011 for the third year in a row, dropping from 117.6 mmt in 2010 to 111 mmt in 2011. In 2008, facilities reported emitting 133.4 mmt of emissions.[34]

[k] Other Legislation

In 2007, California passed SB 97.[35] This law requires the Governor's Office of Planning and Research to prepare by July 1, 2009, and the Resources Agency to adopt by January 1, 2010, guidelines on analyzing and mitigating a project's contribution to climate change. The guidelines must also address the impacts of global climate change on a project. The guidelines are to be periodically updated to incorporate new information developed pursuant to AB 32 regulations.

In September 2008, California enacted SB 375, a law that utilizes a streamlined environmental review process to incentivize land developers to incorporate GHG reduction strategies into new residential and mixed-use developments.[36] The law directs CARB to establish GHG reduction targets for emissions from automobiles and light trucks. In addition, each of California's 18 metropolitan planning organizations must devise a "sustainable community strategy" and incorporate it into their regional transportation plans in order to meet the targets set by CARB. The law also provides relaxed requirements under the California Environmental Quality Act (CEQA). "Transit priority projects"—which are defined as projects that have a 50% residential use with a density of at least 20 units per acre, are located within a half mile of a major transit stop or a high-quality transit corridor, and are deemed "sustainable communities projects"—are exempt from CEQA review. In addition, residential or mixed-use residential projects that are consistent with the sustainable community strategy, incorporate mitigation measures required by an applicable prior environmental review document, and dedicate 75% of the total square footage to residential uses qualify for streamlined CEQA review.

In April 2009, CARB approved a regulation adopting a low-carbon fuel standard, designed to cut the average "carbon intensity" of transportation fuels by 10% over the next 10 years.[37] The regulation establishes a policy for calculating the life-cycle emissions of all vehicle fuels, specifically measuring the level of GHG emissions associated with the production, distribution and consumption of gasoline, diesel fuels and their alternatives. Fuel providers, refiners, importers, and blenders will have to demonstrate that the mix of fuels they supply meets the declining "carbon intensity" standard each year through a market-based reporting system based on the amount of fuel sold in the state. In June 2013, a California state appellate court held that CARB, in adopting the standard, violated CEQA by approving the regulations before CEQA review was completed, but it declined to suspend enforcement of the regulations.[38] Previously, in 2011, a federal district court struck down the standard on the grounds that it violated the *Commerce Clause*.[39] In September 2013, the Ninth Circuit reversed, holding that the standard did not

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[33] *Cal. Health & Safety Code § 38599*.

[34] Emission data reports are available at *http://www.arb.ca.gov/cc/reporting/ghg-rep/reported_data/ghg-reports.htm*.

[35] 2007 Stats., Ch. 185; Pub. Res. Code §§ 21803.05, 21097.

[36] L. 2008, ch. 728. A copy of the law is available at http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb_0351 0400/sb_375_bill_20080930_chaptered.html.

[37] Information about California's low-carbon fuel standard program is available at *http://www.energy.ca.gov/low_carbon_fuel_standard*.

[38] POET, LLC v. Cal. Air Resources Board, Index No. F064045 (Cal. Ct. App. June 3, 2013).

unconstitutionally discriminate against out-of-state commerce on its face.[40] The court remanded the case to the district court to determine whether the standard unconstitutionally discriminates in purpose or effect against interstate commerce.

California has enacted legislation regulating tailpipe emissions of CO_2 and other GHGs. In December 2005, it sought a waiver from the EPA under the CAA to adopt these standards. In November 2007, in response to the agency's failure to act on its waiver request, California filed a lawsuit seeking to compel the agency to do so.[41] The next month EPA denied the waiver, and California and other states vowed litigation to challenge the refusal. On December 19, 2007, EPA Administrator Stephen Johnson denied California's request, stating that it did not meet the statutory requirements of Section 209 of the CAA.[42] Johnson's decision marked the first time that EPA denied California a waiver to implement vehicle standards stricter than federal requirements. In response, California and others sued EPA in federal court.[43] In April 2008, the Ninth Circuit rejected a motion by the EPA to dismiss the suit on the grounds that it should be heard in the D.C. Circuit.[44] However, the Ninth Circuit granted a subsequent motion to dismiss in July 2008 on the grounds that the suit was premature given that it was filed in January 2008, two months before the EPA Administrator formally entered his decision denying the request for a waiver in the Federal Register.[45] On January 26, 2009, President Obama issued a Presidential Memorandum directing EPA Administrator Lisa Jackson to consider whether EPA's decision to deny the waiver was appropriate and to take appropriate action.[46] On April 17, 2009, EPA released a proposed finding that GHG emissions cause or contribute to air pollution that endangers public health and welfare—the so-called "endangerment finding" that allows EPA to regulate GHGs under the Clean Air Act.[47] In December 2009, EPA issued a final endangerment finding.[48]

On June 30, 2009, EPA Administrator Lisa Jackson announced that she was granting California's request for a waiver of preemption of GHG emissions standards for new motor vehicles.[49] In her decision, Administrator Jackson found that "Congress intentionally structured this waiver provision to restrict and limit EPA's ability to deny a waiver, and did this to ensure that California had broad discretion in selecting the means it determined best to protect the health and welfare of its citizens." She declared that her predecessor's denial "was a substantial departure from EPA's longstanding interpretation of the Clean Air Act's waiver provision and EPA's history of granting waivers to California for its new motor vehicle

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[39] *Rocky Mountain Farmers Union v. Goldstene, 843 F. Supp. 2d 1071 (E.D. Cal. 2011)*.

[40] *Rocky Mountain Farmers Union v. Corey, 730 F.3d 1070 (9th Cir. 2013)*.

[41] State of California v. Environmental Protection Agency (D.D.C. filed Nov. 8, 2007).

[42] A copy of this letter is available at *http://ag.ca.gov/cms_attachments/press/pdfs/n1514_epa-letter.pdf*.

[43] State of California v. Environmental Protection Agency, No. 08-70011 (9th Cir. filed Jan. 2, 2008). A copy of this petition is available at *http://ag.ca.gov/cms_attachments/press/pdfs/n1514_epapetition-1.pdf*.

[44] State of California v. Environmental Protection Agency (9th Cir. Apr. 10, 2008) (unpublished). A copy of this decision is available at *http://climate.alston.com/files/docs/Ninth_Circuit_Ruling.pdf*.

[45] State of California v. Environmental Protection Agency (9th Cir. July 25, 2008) (unpublished). A copy of this decision is available at *http://climate.alston.com/files/docs/ccn07252008_waiver.pdf*.

[46] A copy of this memorandum is available at *http://www.whitehouse.gov/the_press_office/California_Request_for_Waiver_Under_the_Clean_Air_Act*.

[47] The proposed finding is available at *http://epa.gov/climatechange/endangerment/downloads/GHGEndangermentProposal.pdf*.

[48] *74 Fed. Reg. 66496 (Dec. 15, 2009)*. Information about the final endangerment finding is available at *http://www.epa.gov/climatechange/endangerment.html*.

[49] The notice granting the waiver is available at *http://www.epa.gov/OMS/climate/ca-waiver.htm*.

emissions program." She said that "if California needs a separate motor vehicle program to address the kinds of compelling and extraordinary conditions discussed in the traditional interpretation, then Congress intended that California could have such a program." The decision applies to automobiles and light trucks for the 2009 through 2012 model years, though Ms. Jackson said manufacturers would not be penalized if they did not meet it for model year 2009.

One of the difficulties that the automakers had faced is that they needed to meet three different sets of standards—the federal emissions standards; the California emissions standards; and the federal fuel economy standards (which in effect limit emissions of CO_2). In May 2009, the Obama administration announced that it had reached an agreement with California and the automakers to merge all these standards for model years 2012 through 2016 into one set of progressively tighter standards.[50] The new standards, covering model years 2012–2016, and ultimately requiring an average fuel economy of 35.5 mpg in 2016, will be proposed jointly by EPA and the National Highway Traffic Safety Administration. This limit surpasses the CAFE law passed by Congress in 2007 which required an average fuel economy of 35 mpg in 2020.

On September 15, 2009, EPA Administrator Lisa Jackson officially announced the proposal, which would require cars and light trucks sold in model year 2016 to achieve an average of 35.5 mpg. According to the proposal, the proposed standards would cut CO_2 emissions by an estimated 950 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program.[51] On April 1, 2010, EPA issued its final rule regarding these standards, which require an increase in fuel economy in cars and light trucks to 35.5 mpg by model year 2016.[52] On October 1, 2010, the Obama Administration announced that it would propose fuel economy standard for cars and light trucks of 62 miles per gallon for model years 2017–2025.[53] On July 29, 2011, as part of an agreement with automobile manufacturers and unions, the Obama Administration announced plans to increase CAFE standards for cars and light trucks to 54.5 mph by 2025.[54] The agreement would require automakers to increase the fuel economy of cars by 5% annually. However, light-duty trucks would be allowed to increase by only 3.5% through 2021 and then by 5% annually through 2025. In November 2011, EPA and the National Highway Traffic Safety Administration jointly proposed CAFE standards for passenger vehicles and light trucks for model years 2017 through 2025, with average fuel economy for these vehicles rising to 54.5 mph by 2025.[55]

On December 30, 2009, the California Natural Resources Agency adopted guidelines for analyzing and lessening greenhouse gas impacts linked to new policies and development projects.[56] The rulemaking updates statewide guidelines for implementing CEQA and makes clear that greenhouse gas emissions and their impacts must be evaluated as part of the CEQA process.

In September 2010, in response to Governor Schwarzenegger's September 2009 executive order, the California Air Resources Board unanimously adopted a Renewable Electricity Standard (RES) to require a 33% renewable energy procurement mandate by 2020 for most retail sellers of electricity in California.[57]

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[50] This announcement is available at *http://www.whitehouse.gov/the_press_office/President-Obama-Announces-National-Fuel-Efficiency-Policy*.

[51] Information about this proposal is available at *http://www.epa.gov/otaq/climate/regulations.htm*.

[52] Information about this final rule is available at *http://www.epa.gov/otaq/climate/regulations.htm*.

[53] The Notice of Intent announcing this proposal is available at *http://www.epa.gov/otaq/climate/regulations/ldv-ghg-noi.pdf*.

[54] Information about this agreement is available at *http://www.whitehouse.gov/sites/default/files/fuel_economy_report.pdf*.

[55] Information about these proposed standards is available at *http://www.nhtsa.gov/fuel-economy*.

[56] The text of these guidelines is available at *http://ceres.ca.gov/ceqa/docs/Adopted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf*.

On May 21, 2010, in a Presidential Memo, President Obama directed EPA and the Department of Transportation to begin a rulemaking for first-ever fuel economy and GHG emissions standards for medium- and heavy-duty trucks. He also directed the federal agencies to develop new fuel economy and GHG emissions standards for cars and light trucks for model year 2017 and beyond.[58]

On June 26, 2012, the U.S. Court of Appeals for the District of Columbia Circuit dismissed all challenges to EPA's body of greenhouse gas regulation, including the tailpipe rule.[59] The challenges, which were consolidated under *Coalition for Responsible Regulation v. EPA*,[60] were brought by various states (including California) and industry groups. The groups challenged the endangerment finding, in which EPA determined that greenhouse gases may "reasonably be anticipated to endanger public health or welfare"; the "tailpipe" rule, which set emission standards for cars and light-duty trucks; the "timing" rule, which required that new controls of greenhouse gas emissions from stationary sources be triggered on January 2, 2011; and the "tailoring" rule, pursuant to which only the largest stationary sources would initially be subject to permitting requirements.

Petitioners argued that all four rules were based on improper constructions of the CAA and were otherwise arbitrary and capricious. The court disagreed, concluding that the endangerment finding and tailpipe rule were neither arbitrary nor capricious, EPA's interpretation of the governing CAA provisions was unambiguously correct, and no petitioner had standing to challenge the timing and tailoring rules. The court dismissed for lack of jurisdiction all petitions for review of the timing and tailoring rules, and denied the remainder of the petitions.

With regard to the challenge to the tailpipe rule, petitioners contended that EPA relied on an improper interpretation of CAA § 202(a)(1) and was arbitrary and capricious in failing to justify and consider the cost impacts of its conclusion that the rule triggers stationary-source regulation under the PSD and Title V provisions. The court found that the plain text of 202(a) as well as legal precedent precluded petitioners' contentions. Ultimately, Congress vested a non-discretionary duty on EPA to issue motor vehicle emission standards regardless of stationary-source costs. Thus, "[h]aving made the Endangerment Finding pursuant to CAA § 202(a) … EPA lacked discretion to defer promulgation of the Tailpipe Rule on the basis of its trigger of stationary-source permitting requirements under the PSD program and Title V."[61]

[6] Carbon Capture and Sequestration

Some states are beginning to pass legislation concerning carbon capture and sequestration (CCS), a process by which emissions are captured from large point sources, such as coal-fired power plants, and stored underground.[1] Technology for large scale capture of CO_2 is already available and well developed. However, the long term storage of CO_2 is a relatively untried concept, and as of February 2020, no large scale power plant operates with a full carbon capture and storage system. The federal government does not currently regulate

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[57] Information about the RES is available at *http://www.arb.ca.gov/energy/res/res.htm*.

[58] The Presidential Memo is available at *http://m.whitehouse.gov/the-press-office/presidential-memorandum-regarding-fuel-efficiency-standards*.

[59] *Coalition for Responsible Regulation v. EPA, 684 F.3d 102 (D.C. Cir. 2012)*.

[60] *684 F.3d 102 (D.C. Cir. 2012)*.

[61] *Coalition for Responsible Regulation v. EPA, 684 F.3d 102, 126 (D.C. Cir. 2012)*.

[1] For a complete discussion of carbon capture and sequestration, see David M. Flannery et al., *Carbon Capture and Sequestration* (Bradley M. Marten ed., LexisNexis Global Climate Change Special Pamphlet Series).

CCS, but EPA has announced that it will issue a draft rule establishing a nationwide permitting program under the Safe Drinking Water Act.[2]

In March 2008, Wyoming enacted two laws establishing a regulatory framework for CCS. HS 89 addresses property rights associated with subsurface storage space and vests ownership of the subsurface space that can be used as storage space for CO_2 with the owner of the surface lands and waters above the storage space.[3] HB 90 establishes a permitting framework for CO_2 injection and storage projects and grants the state's Department of Environmental Quality permitting authority over injection and storage projects.[4] In 2009, Montana enacted two laws regarding CCS. One law gives ground pore space ownership to the holder of the land's mineral rights, rather than to the surface landowner.[5] The other law grants common carrier status to the industrial owners of pipelines transporting CO_2, enabling them to declare eminent domain over private property owners.[6] Mississippi enacted legislation to provide tax relief to oil and gas producers on sales of power and fuel used in the permanent sequestration of carbon dioxide.[7]

In November 2010, EPA finalized two rules that seek to address safety and emissions at CCS sites. The first rule establishes requirements for underground injection of carbon dioxide to ensure safety and prevent the carbon dioxide from causing underground contamination.[8] The second rule requires GHG reporting from geologic carbon dioxide storage sites and from sites where carbon dioxide is used for enhanced oil recovery and other purposes.[9]

In August 2011, DOE announced that it would invest $41 million in 16 projects to help develop energy-and cost-efficient CCS technologies. According to the agency, existing CCS technologies require large amounts of energy to operate and could result in lower net power production at large plants, raising the price of electricity produced at the plants significantly.[10] Current systems would require that 20–30% of the power generated by a large plant be dedicated to capturing and compressing CO_2. The DOE-backed projects will focus on developing technologies that remove at least 90% of a plant's CO_2 and raise the price of produced electricity by no more than 35%.

In February 2012, the Center for Climate and Energy Solutions released a study finding that 15 large CCS projects either under construction or in operation around the world have the capacity to store more than 35 million tons of CO_2 a year, roughly equivalent to the CO_2 emitted by six million cars.[11] Four of the 15 projects are in North America, with three in the U.S. and one in Canada.

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[2] *See* "EPA to Develop Regulations for Geologic Sequestration of Carbon Dioxide," EPA Press Release (Oct. 11, 2007), *available at* http://yosemite.epa.gov/opa/admpress.nsf/names/hq_2007-10-11_carbon.

[3] L. 2008, ch. 18; *Wyo. Stat. Ann. § 34-1-152*. Text of this bill is available at *http://legisweb.state.wy.us/2008/Enroll/HB0089.pdf*.

[4] L. 2008, ch. 25; *Wyo. Stat. Ann. §§ 30-5-501* & *35-11-313*. Text of this bill is available at *http://legisweb.state.wy.us/2008/Enroll/HB0090.pdf*.

[5] Mont. L. 2009, ch. 474.

[6] Mont. L. 2009, ch. 231.

[7] *Miss. Code § 27-65-19(1)(c)(iii)*.

[8] 40 C.F.R. Parts 124, 144, 145 and 146.

[9] 40 C.F.R. Parts 72, 78 and 98.

[10] Information about DOE's CCS research program is available at *http://www.fossil.energy.gov/programs/sequestration/capture*.

[11] The report, entitled *A Greenhouse Gas Accounting Framework for Carbon Capture and Storage Projects*, is available at *http://www.c2es.org/publications/greenhouse-gas-accounting-framework-carbon-capture-and-storage-projects*.

In May 2012, the WorldWatch Institute released a report finding that the capacity of CCS sites doubled in 2011 even though the number of projects declined.[12] The report found that there were 75 CCS projects active in 17 countries in 2011, down from 79 in 2010. Eight projects are currently operational with a storage capacity of 23.18 million tons of CO_2 per year, double the capacity from 2010. The U.S. was the largest supporter of CCS projects, with $6.1 billion allocated and $1.3 billion targeted for future projects. The European Union was second, having announced $5.6 billion for CCS projects.

In June 2012, the Congressional Budget Office released a report finding that CCS is still too expensive to be commercially viable and that federal efforts to reduce the costs have not been fruitful.[13] According to the report, Congress has provided $6.9 billion in funding to the Department of Energy since 2005 to develop and demonstrate the commercial potential of CCS, but this funding has not brought the cost of the technology down significantly to make it commercial viable. The report says that without emissions restrictions or a price on carbon emissions, utilities have little incentive to invest in CCS. Electricity from coal plants using CCS currently costs about 75 percent more than power from conventional power plants. The report says that federal money would be better spent on basic research and development of CCS to find cost-reducing technological breakthroughs.

In June 2013, the Department of the Interior published an assessment finding that the United States has the capacity to store up to 3.7 trillion metric tons of CO_2 in 36 geological basins located throughout the country.[14] Based on present-day geologic and hydrologic knowledge of the subsurface and current engineering practices, the assessment looked at the potential for CO_2 storage in 36 basins in the United States. The largest potential by far is in the Coastal Plains region, which accounts for 2,000 metric gigatons, or 65 percent, of the storage potential. Two other regions with significant storage capacity include the Alaska region and the Rocky Mountains and Northern Great Plains region.

In December 2013, EPA issued a final rule that outlines requirements for CCS technologies to protect underground sources of drinking water.[15] The rule clarifies that such captured and stored CO_2 will be excluded from the Resource Conservation and Recovery Act's hazardous waste definitions for discarded waste.

End of Document

[12] The report is available at http://www.vitalsigns.worldwatch.org/vs-trend/carbon-capture-and-storage-experiences-limited-growth-2011.

[13] The report, entitled *Federal Efforts to Reduce the Cost of Capturing and Storing Carbon Dioxide*, is available at https://www.cbo.gov/publication/43357.

[14] A DOI press release explaining the assessment is available at http://www.doi.gov/news/pressreleases/interior-releases-first-ever-comprehensive-national-assessment-of-geologic-carbon-dioxide-storage-potential.cfm.

[15] *79 Fed. Reg. 350 (Jan. 3, 2014)*. The rule is available at https://www.federalregister.gov/articles/2014/01/03/2013-31246/hazardous-waste-management-system-conditional-exclusion-for-carbon-dioxide-co2.