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California Declines the Nuclear Gamble: Is Such a State Choice Preempted?*

Laurence H. Tribe**

I

INTRODUCTION

The extent to which the federal Atomic Energy Act of 1954 (AEA)\(^1\) allows the states to regulate the siting, construction, and operation of nuclear power plants is a question of great significance to the entire nation at a time when the rising costs of traditional fuels have caused suppliers and consumers alike to search for safe, economical, and reliable alternative sources of energy. The extent of residual state authority over activity which is already subject to a comprehensive federal regulatory scheme is largely a question of congressional design.

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* This Article is an expanded and revised version of a legal memorandum on the same subject prepared for the California Assembly Subcommittee on Energy by the author in his capacity as Special Counsel to that subcommittee. The earlier work was published as part of the ASSEMBLY SUBCOMMITTEE ON ENERGY, REPORT TO THE LEGISLATURE ON THE CONSTITUTIONALITY OF CALIFORNIA'S NUCLEAR LAWS 1-63 No. 685, (1978).
** Professor of Law, Harvard University. I am indebted to David H. Remes, a student at Harvard Law School, for assistance in the preparation of the original legal memorandum. I am also indebted to Peter Sklarew, a student at Boalt Hall School of Law, University of California, Berkeley, for assistance with this Article.

Defining the state and federal roles—both unravelling that design and subjecting it to constitutional review—is a delicate task inasmuch as both sovereignties have important interests in exercising authority over the activity in question. With respect to nuclear power plants, Congress has declared that national regulation is necessary to provide for the common defense and to assure the safe operation of such facilities. Yet the states also have an interest in the safety of nuclear power plants as well as an important interest in the economic, environmental, and social implications of using nuclear fuel to generate electricity for their citizens. California has recently enacted legislation in pursuit of these state interests.

In June 1976, the California Legislature added to the Public Resources Code three sections which set forth the circumstances under which California will permit land use for nuclear fission thermal power plants:

\[\text{2. 42 U.S.C. § 2012(e) (1976).} \]
\[\text{3. 42 U.S.C. § 2012(f) (1976).} \]
\[\text{4. CAL. PUB. RES. CODE § 25524.1 (West 1977) (enacted 1976 Cal. Stats., ch. 196, § 1); id. § 25524.2 (West 1977) (enacted 1976 Cal.Stats., ch. 196, § 1); id. § 25524.3 (West Supp. 1978) (enacted 1976 Cal. Stats., ch. 195, § 1, amended by 1977 Cal. Stats., ch. 61, § 1). The texts of these three provisions are set out in the Appendix, infra.} \]

5. The three nuclear provisions were passed shortly before the people of California were to vote on the California Nuclear Initiative ("Proposition 15"), which was then rejected by the voters. The bills expressly provided that they were not to become operative if Proposition 15 passed. 1976 Cal. Stats. chs. 194, § 2; 195, § 2; 196, § 2. The legislature's apparent intent was to establish more moderate assurances than would have been imposed by Proposition 15 that the construction of atomic power plants within the state would not proceed hastily and imprudently. ASSEMBLY COMMITTEE ON RESOURCES, LAND USE AND ENERGY, REASSESSMENT OF NUCLEAR ENERGY IN CALIFORNIA, A POLICY ANALYSIS OF PROPOSITION 15 AND ITS ALTERNATIVES, 154-58 (1976).

The California nuclear provisions constitute an amendment to the 1974 Warren-Alquist State Energy Resources Conservation and Development Act, ("Warren-Alquist Act"), CAL. PUB. RES. CODE §§ 25000-25968 (enacted 1974 Cal. Stats., ch. 276, § 2), which sets forth state policies concerning, among other things, the generation, transmission, and consumption of electrical energy, and establishes a comprehensive administrative procedure for review, evaluation, and certification of power plant sites and related facilities proposed to meet the forecasted demand for power. See text accompanying notes 190-210 infra. The Act's "General Provisions" declare that:

\[\text{[It is the responsibility of state government to ensure that a reliable supply of electrical energy is maintained at a level consistent with the need for such energy for protection of public health and safety, for promotion of the general welfare, and for environmental quality protection.} \]

CAL. PUB. RES. CODE § 25001 (West 1977).

The Legislature further finds and declares that prevention of delays and interruptions in the orderly provision of electrical energy, protection of environmental values, and conservation of energy resources require expanded authority and technical capability within state government.

\[\text{Id. § 25005.} \]

It is further the policy of the state and the intent of the Legislature to employ a range of measures to reduce wasteful, uneconomical, and unnecessary uses of energy, thereby reducing the rate of growth of energy consumption, prudently conserve energy resources, and assure statewide environmental, public safety, and land use goals.
Section 25524.1—The Fuel Rod Reprocessing and Storage Provision
Section 25524.2—The High Level Waste Disposal Provision
Section 25524.3—The Underground and Berm-Containment Provision

Section 25524.1(a) prohibits siting new nuclear power plants that re-
quire reprocessing of fuel rods until the California Energy Resources
Conservation and Development Commission (hereinafter Energy
Commission) finds that the technology for construction and operation
of nuclear fuel rod reprocessing plants exists and has been identified
and approved by the federal government. Under section 25524.1(b), an
individual nuclear plant may not be approved unless the Energy
Commission finds that either offsite storage or reprocessing facilities for
nuclear wastes will be available as needed by the plant. Section
25524.2 prohibits siting of new nuclear plants until the Energy Com-
misson finds that a demonstrated technology or means for the disposal
of high level nuclear wastes exists and that the federal government has
approved such a technology. Section 25524.3 provides that new nu-
clear power plants for which notices of intent are filed with and ac-
cepted by the Energy Commission subsequent to January 1, 1980, will
not be permitted land use in California until the Energy Commission
has completed a study of the necessity and economic feasibility of
berm-containment and undergrounding of nuclear power plants.

Id. § 25007 (emphasis added).
6. See note 121 infra.
7. The State Energy Resources and Development Commission was established by the
8. The legislature may review and has up to 100 legislative days to “remand” to the
Energy Commission for reexamination of the necessary affirmative findings of the Commis-
sion by majority resolution of either house. If the findings on reexamination remain affirm-
avative, the legislature has an additional 100 days to void the findings by statutory enactment
before the Commission may proceed to certify nuclear power plants. Id., § 25524.1(a)(2).
See note 24 infra.
9. See text accompanying note 132 infra.
10. A one-house remand procedure is also provided for in the High Level Waste Dis-
posal provision (see note 8 supra). CAL. PUB. RES. CODE § 25524.2(b) (West 1977).
11. A utility must file a “Notice of Intent” to apply for certification of sites and related
facility proposals in order to initiate the review process by which the need, relative merit,
and ultimate acceptability of such proposals is evaluated. CAL. PUB. RES. CODE, §§ 25502-
25523 (West 1977). For a fuller discussion of this process, see text accompanying notes 190-
210 infra.
12. Section 25524.3 as originally enacted was expressly inapplicable to any nuclear
power plant for which a notice of intention to apply for certification had been filed “within
three years of the effective date” of the enactment. A subsequent amendment substituted
“January 1, 1977” for “the effective date of this enactment.” 1977 Cal. Stats., ch. 61, § 1.
13. This section goes on to provide that if the Commission determines that berm-con-
tainment or undergrounding are necessary, effective, and feasible, it may adopt regulations
to require such procedures. However, such regulations shall be suspended for one year to
allow the legislature time to evaluate the study. CAL. PUB. RES. CODE § 25524.3(b) (West
Supp. 1978). If the Commission determines that berm-containment and undergrounding are
not necessary, effective, or feasible, no nuclear plant may be approved for one year to allow
the legislature time for possible statutory implementation. Id., § 25524.3(c). The study was
originally called for “within one year of the effective date” of the section which was later
Although the Fuel Rod-Reprocessing and High Level Waste Disposal provisions set no specific deadlines for final Energy Commission determinations, the legislature subsequently enacted Public Resources Code Section 25524.25, which required the Energy Commission to inform the legislature by January 16, 1978 whether the required findings could be made at that time. On January 25, 1978, the Energy Commission issued a decision after conducting an "intensive investigation of the technical and programmatic status of the federal programs for nuclear fuel reprocessing and waste management." As the order denying a petition for reconsideration made clear, the decision was not a final determination pursuant to Public Resources Code Sections 25524.1(a) and 25524.2. Rather, "the Energy Commission will continue to monitor developments in waste disposal and reprocessing to determine whether new information requires a change in the Commission's January 25 decision."

The Energy Commission concluded in its decision that section 25524.1(a), referring to facilities that require reprocessing of fuel rods, is not presently applicable to reactors in California since reprocessing is neither made necessary by technical operational requirements or economic considerations, nor required by the federal government. Although the Energy Commission found that the federal government had determined that nuclear weapons proliferation concerns stemming amended to read "within one year from January 1, 1977." 1977 Cal. Stats., ch. 61, § 1. The Energy Commission staff has recommended that underground siting (including "mined-cavern siting" consisting of building reactors in caverns excavated in solid rock and "berm containment" where a nuclear power plant is built in a large excavated pit and then covered with soil) not be mandated because of remaining uncertainty regarding costs and licensing concerns, the existence of apparently less expensive alternatives, and the opportunity to implement remote siting in California. STAFF OF CALIFORNIA ENERGY COMMISSION, DRAFT, UNDERGROUND SITING OF NUCLER POWER REACTORS: AN OPTION FOR CALIFORNIA; A SUMMARY OF THE TECHNICAL AND ECONOMIC IMPLICATIONS WITH RECOMMENDATIONS iv, v, xi, 9-4 (June 1978) [hereinafter cited as STAFF REPORT: UNDERGROUND SITING]. Recently, the Commission officially adopted this report and its recommendations. Decision, In the Matter of Determinations of the Commission Pursuant to Public Resources Code Section 25524.3, ERCDC, No. 76-NL-2, slip op. at 2, 4 (September 13, 1978) [hereinafter cited as Decision: Underground Siting].

14. CAL. PUB. RES. CODE § 25524.25 (West Supp. 1978) (enacted 1977 Cal. Stats., ch. 1144, § 1) (otherwise known as "AB 1852"). A primary purpose of this "advisory" determination was to enable the Energy Commission to recommend to the legislature whether a specific power plant proposal (the "Sundesert" Nuclear Project proposed by San Diego Gas and Electric Co.) should be exempted from the California nuclear provisions. See Order Denying Petition for Reconsideration, In the Matter of Implementation of Nuclear Reprocessing and Waste Disposal Statutes, ERCDC, Nos. 76-NL-1, 76-NL-3 (March 22, 1978) [hereinafter cited as Order Denying Reconsideration]. SB 1015, which would have provided for this exemption, was rejected by the California Assembly.


16. Order Denying Reconsideration, supra note 14, at 2. The Commission will also entertain petitions to institute new hearings upon a showing of new evidence. Id.
from reprocessing (presumably greater opportunity for theft of weapons-grade fuel) presently outweigh any economic advantage that may exist, it noted in its decision that this federal policy is subject to change. It further concluded, however, that a complete technology for reprocessing does not exist and "therefore, the required findings of section 25524.1(a), if that section were presently applicable, could not now be made."\(^7\)

With respect to section 25524.2, the Energy Commission found "that even the initial steps necessary for federal approval of waste disposal technology have not been completed," and that the technology has not been demonstrated.\(^8\) Therefore the Energy Commission could not make the affirmative findings required by the section.

In light of the findings in its decision, the Energy Commission cannot presently certify any nuclear fission thermal power plants. The conditions imposed by the nuclear provisions will prevent such certification until the technology or means for disposing of high-level radioactive wastes actually exists, and is approved by the federal government. The Energy Commission projects that such capability will be available no sooner than the mid-1980's;\(^19\) the time required may easily extend into the 1990's.\(^20\)

The conditions imposed by the State of California on the siting of nuclear power plants raise constitutional questions concerning the allocation of power between the federal and state governments in the field of nuclear power regulation.\(^21\) The California Attorney General, on

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17. Decision, supra note 15, at 3. The Commission apparently recognized that such a conclusion means the individual determinations pursuant to section 25524.1(b) will necessarily be restricted to storage capacity as opposed to reprocessing capacity: "Under section 25524.1(b) the Commission will, on a case-by-case basis, review carefully the spent fuel storage capacity at individual reactor sites." Id. at 5. The Commission must still find, however, that offsite storage facilities will be in operation when and if an individual nuclear plant will require such offsite storage "to provide continuous onsite full core reserve storage capacity." CAL. PUB. RES. CODE § 25524.1(b) (West 1977).


20. A recent analysis by a special task force in the U.S. Department of Energy concluded that 1988 would be the earliest date for an operating repository for commercial high-level wastes. The "ambitious" schedule for having the Waste Isolation Pilot Plant in operation by 1985 was not changed by the task force. U.S. DEPARTMENT OF ENERGY, REPORT OF TASK FORCE FOR REVIEW OF NUCLEAR WASTE MANAGEMENT, DRAFT 12, 14 (February 1978).


22. See note 1 supra.

23. 61 OP. CAL. ATT’Y GEN. 159 (1978) (discussed in notes 101, 104, 110, 202 infra). The constitutionality of the nuclear provisions was an intensely controversial issue in the Office of the California Attorney General. After the existence of two confidential draft opinions and accompanying memoranda reportedly urging support for the laws and indicating that deputies vehemently resisted demands from Attorney General Evelle Younger for opinions which would find the laws unconstitutional became known, see Younger’s Disputed Nuclear Role, San Francisco Chronicle, March 8, 1978, at 1, the California Energy Commission filed a California Public Records Act request pursuant to sections 6250-6261 of the California Government Code with the Attorney General’s office seeking “copies of all documents in the Department of Justice files which relate to the preparation of Opinion No. SO 77/50.” Letter of April 26, 1978, to Attorney General Evelle Younger from Richard Maullin, ERCDC Chairman. After five months and a second request and complaint from the Commission (Letter of July 7, 1978, to Mr. Charles Barrett, Chief Deputy Attorney General, from James A. Walker, Executive Director, ERCDC), the Attorney General respectfully denied the request, stating that the public interest would be better served by nondisclosure and citing section 6255 of the California Government Code. Letter of Aug. 17, 1978, to Richard Maullin, ERCDC Chairman, from Charles Barrett, Chief Deputy Attorney General. The Energy Commission filed suit pursuant to sections 6258-6259 of the California Government Code to obtain the documents. California Energy Resources Conservation and Development Comm. v. California Dep’t of Justice, No. 276760 (Sup. Ct, Sacramento Co., filed Oct. 5, 1978). The Department then elected to make the opinion file available for public inspection acknowledging that a portion of it had been disclosed to the public providing possible grounds for a waiver of confidentiality. Letter of Oct. 30, 1978, to Richard Maullin, ERCDC Chairman, from Charles Barrett, Chief Deputy Attorney General. Sources within the Attorney General’s office have indicated that the file had been given to the Pacific Legal Foundation for use in the declaratory judgment action (see note 21 supra). Telephone Conversation of Jan. 16, 1979, between Kathy Dickson, ERCDC Legal Counsel, and Peter Sklarew. Deputy Attorney General Michael Strumwasser’s 129 page opinion concludes that the portions of California’s legislation concerning nuclear reprocessing, storage, and waste disposal are not preempted but that the third provision is unconstitutional insofar as it purports to authorize mandatory undergrounding. The other rejected draft finds all three provisions unconstitutional but the accompanying memorandum asserts that these conclusions are incorrect and urges adoption of the Strumwasser draft. In fact, the file discloses that the first draft was approved by five deputies and only disapproved by Attorney General Evelle Younger. Id.

Younger made his “pro-nuclear” stance a major issue in his unsuccessful race for governor, Younger’s Disputed Nuclear Role, San Francisco Chronicle, March 8, 1978, at 1, claiming that “without nuclear power plants the lights will go out in the 1980’s and we’re going to have the worst depression we’ve ever seen.” Younger Campaigns at Forest Lawn, San Francisco Chronicle, Sept. 7, 1978, at 16. Earlier in the year, the Attorney General accused the incumbent, Governor Edmund G. Brown, Jr., of sharing a determination with the California Energy Commission that no more nuclear power plants would be built in the state, and the Attorney General refused to represent that state body in matters involving nuclear energy. Letter of February 21, 1978 to Governor Edmund G. Brown, Jr., from Attorney General Evelle Younger (published in ASSEMBLY SUBCOMMITTEE ON ENERGY, RE-
opinion additionally concluded that the one-house remand provisions violate section 8(b) of article IV of the California Constitution.24

24. See notes 8, 10, and accompanying text supra for a description of those provisions. Article IV, section 8(b) of the California constitution provides in pertinent part:

The legislature may make no law except by statute and may enact no statute except by bill. . . . No bill may be passed unless, by rollcall vote entered in the journal, a majority of the membership of each house concurs.

The California procedure for enacting laws was conceived long before the rise of the bureaucratic regulatory apparatus which has become the core of modern government, and which has been anything but an unmixed blessing. See generally Stewart, The Reformation of American Administrative Law, 88 HARP. L. REV. 1667 (1975). In order to reassert a measure of popular control over the decision-making of governmental agencies, both the Congress and the California Legislature have begun to experiment with formal procedures—more formal than traditional budgetary maneuvering—whereby the legislature can oversee its necessarily broad delegations of power to individual agencies. See generally Watson, Congress Steps Out: A Look at Congressional Control of the Executive, 63 CALIF. L. REV. 983 (1975).

The argument that any legislative veto of administrative action taken pursuant to a prior delegation of authority constitutes a usurpation of the judicial function in interpreting the scope of the original delegation or a change in that delegation’s initial scope and hence a step that must be taken in the form of a new statute, exalts rigid formulas over functional concerns in an area where doctrine must be responsive to basic problems of political accountability and due process. It is hardly surprising, therefore, that the Court of Claims has recently upheld the constitutionality of a one-house veto. Atkins v. United States, 556 F.2d 1028, 1069-71 (Ct. Cl. 1977). See also Buckley v. Valeo, 424 U.S. 1, 284-86 (1976) (White, J. concurring). The claim that such a veto unduly constricts effective regulatory action represents a debatable political judgment. A legislature should be free to accept or reject such a judgment, which depends on factors too subtle and complex to reduce to any unitary formula.

Whatever the legal status of a one-house veto, California’s milder step of enacting statutes which subject state agency findings (required by these same statutes) to a “remand” for a second look by the agency unless both houses of the legislature are satisfied is not constitutionally objectionable. See CAL. PUB. RES. CODE §§ 25524.1(a)(2), 2(b) (West 1977). The California Legislature has not expanded its own powers beyond those contemplated in article IV of the California constitution, nor impermissibly encroached upon the powers of another branch of California’s government.

If the California courts should refuse to permit this flexibility needed to assure maximum political accountability, it would not follow that the nuclear laws must be held invalid in their entirety. In enacting the Warren-Alquist Act, to which the nuclear provisions are an amendment, the California Legislature provided that a holding of invalidity respecting any provision of the act “shall not affect other provisions or applications of the act which can be given effect without the invalid provision or application, and to this end the provisions of the act are severable.” 1974 Cal. Stats., ch. 276, § 5. Additionally, section 18 of the California Public Resources Code provides:

If any provision of this code or the application thereof to any person or circumstances, is held invalid the remainder of the code and the application of its provisions to other persons or circumstances shall not be affected thereby.

Therefore, if the one-house remand provisions of the nuclear power plant siting laws are construed as violating the California constitution, the remaining provisions can still be given effect. The Energy Commission’s findings could be reviewed and rejected by the legislature by the enactment of a statute to that effect.

In any event, until the Energy Commission makes the affirmative findings, injury attrib-
It is my purpose in this Article to examine the constitutionality of California's nuclear provisions in light of the preemption doctrine and the Atomic Energy Act of 1954. My conclusion is that these provisions are not preempted by federal law. On the contrary, they properly serve the vital interests of the people of California in providing California citizens with a plan of maximal accountability for the development of a responsible and economical state energy program within the framework of national energy policy and federal law.25

II

THE PREEMPTION DOCTRINE

Preemption by the federal government of the states' power to regulate an activity strikes at the distribution of federal and state power in a federal system. The doctrine is rooted in the juxtaposition of the powers reserved to the states26 and the supremacy of federal law over state law under the United States Constitution.27

The views of the Supreme Court of the United States in federal preemption cases have evolved and shifted over the years. In the early nineteenth century, it was thought that, when the federal government regulated a given subject, any state law purporting to govern the same area was automatically invalid.28 Even early in this century, the Supreme Court held that once "Congress has taken the particular subject-matter in hand coincidence is as ineffective as opposition, and a state law is not to be declared a help because it attempts to go farther than Congress has seen fit to go.”29 Over time, however, the Supreme Court tempered its undifferentiated hostility to state regulation of matters already regulated by the federal government. By the 1930's a state-oriented view of preemption guided the Court. Although results in favor of federal preemption seemed to dominate in the 1950's and

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25. The state's laws were rendered considerably easier to defend against a preemption challenge by the Clean Air Act Amendments of 1977. See text accompanying notes 102-05 infra.

26. The tenth amendment to the United States Constitution provides: "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."

27. Article VI, clause 2 of the United States Constitution provides: "This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding."

28. This was the thrust of Daniel Webster's argument in Gibbons v. Ogden 22 U.S. (9 Wheat.) 1, 8-18 (1824).

1960's, recent court decisions indicate a return to a position of upholding state regulation that is not clearly repugnant to federal law.30

A. Reconciliation of Federal and State Statutory Schemes

The modern principle, reflecting respect for the potential contribution of state and local action to the regulation of complex activities, is that state regulations must be permitted to supplement federal efforts so long as compliance with, or effectuation of, the purpose of valid federal enactments is not significantly impeded.31 For example, in 1973 the Supreme Court upheld a California law preventing compulsory arbitration in wage disputes involving employees of member-corporations of the New York Stock Exchange despite a contrary Exchange rule adopted pursuant to the federal securities laws.32 Acknowledging this conflict, the Court nevertheless found the New York Stock Exchange rule requiring compulsory arbitration in employees' contracts peripheral to the central aim of the federal securities laws (i.e., investor protection), and hence found no interference with the federal regulatory scheme.33 Absent such interference, California's strong independent policy of protecting wage earners was held to prevail. The Court emphasized the importance of "the body of law relating to the sensitive interrelationship between statutes adopted by the separate, yet coordinate, federal and state sovereignties" and noted that "the proper approach is to reconcile the operation of both statutory schemes with one another rather than holding one completely ousted."34

Despite this modern approach to state regulatory power, cases occasionally arise in which supplementary state regulation over an ongoing, federally regulated activity demonstrably interferes with the effectiveness of the federal scheme. Thus, for example, state or local control over the timing of takeoffs and landings at airports controlled by the FAA "would severely limit the flexibility of FAA in controlling air traffic flow," and accordingly is preempted by federal law.35


33. Id. at 134-36.

34. Id. at 127.

35. City of Burbank v. Lockheed Air Terminal, Inc., 411 U.S. 624, 639 (1973). The city ordinance at issue prohibited jets from taking off between 11 p.m. and 7 a.m. and was found to conflict with the central purpose of the Federal Aviation Act "to insure the safety of aircraft and the efficient utilization of . . . airspace." Id. at 627.
B. The Test: Conflict Between State and Federal Law or Exclusive Federal Occupation of a Field

So long as Congress acts within an area delegated to it by the Constitution, the preemption of conflicting state or local action flows directly from the supremacy of federal law; whether a particular state law is preempted becomes largely a matter of statutory construction. The Supreme Court has declared generally that the issue turns on whether the state law "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress." 36 Since congressional purposes may be either substantive or jurisdictional, a state law can interfere with the federal design either because it conflicts with the actual operation of a federal program, or because it intrudes upon a field that Congress validly reserved to federal control. 37

A state statute is void, of course, to the extent it actually conflicts with a valid federal statute. 38 And conflict obviously exists "where compliance with both federal and state regulations is a physical impossibility." 39 In such a case there is no need to inquire into congressional design. The federal law prevails. 40 A more subtle form of actual conflict arises where a state law is an obstacle to the objectives underlying federal enactments. 41 For example, state law may be preempted if it discourages conduct that federal law seeks to encourage, 42 or if it encourages conduct which would impede effectuation of the federal scheme. 43 Recent Supreme Court cases have indicated, however, that conflicts must be real 44 and substantial in order to merit judicial resolu-

42. E.g., Nash v. Florida Industrial Commission, 389 U.S. 235 (1967) (invalidating a state unemployment compensation law insofar as it denied benefits to otherwise eligible applicants solely because they had filed an unfair labor practice charge with the N.L.R.B.).
43. E.g., Jones v. Rath Packing Co., 430 U.S. 519 (1977) (invalidating a California regulation of the labeling of packaged flour sold in the state on the ground that it might encourage national flour manufacturers to overpack in order to insure stated label weight after moisture loss, while local manufacturers who could adjust their packing practices to the region's humidity, and manufacturers distributing only in states following the federal standard, would probably not be inclined to overpack, thus resulting in the frustration of a major purpose of the federal Fair Packaging and Labeling Act, the facilitation of value comparisons among similar products by consumers).
44. Exxon Corp. v. Governor of Maryland, 98 S. Ct. 2207 (1978) (upholding a Maryland law requiring petroleum refiners to extend all "voluntary allowances" uniformly to all service stations they supply despite the possibility that such a law may require uniformity in some situations where the Robinson-Patman Act would permit localized price discrimination). The Court in Exxon cautioned against "seeking out conflicts between state and federal regulation where none clearly exists." Id. at 2216 (quoting from Huron Cement Co. v.
Furthermore, the extent of federal preemption is to be construed narrowly. Conflicting state laws and regulations are "preempted only to the extent necessary to protect the achievement of the aims of the federal law." In *Huron Portland Cement Co. v. Detroit,* the Court upheld a Detroit ordinance regulating smoke emitted while a ship's boilers were being cleaned, despite extensive federal licensing of such ships in interstate and foreign commerce. The Court, refusing to "seek[ ] out conflicts between state and federal regulation where none clearly exists," found "no overlap between the scope of the federal ship inspection laws" that set safety standards for federal licensing of sea-going vessels and the municipal pollution control ordinance.

Since congressional purposes may be jurisdictional as well as substantive, a state law is also void if it trenches upon a field that Congress has explicitly declared its intention to occupy, provided that Congress has acted constitutionally.

Federal occupation of a field can also be inferred from the Congressional enactment. Such a purpose may be evinced by the pervasiveness of the federal regulatory scheme, by the overriding dominance of the federal interest, or by the nature of the federal purpose and the character of the obligations imposed by the federal law. The Supreme Court, however, has cautioned against singular reliance on the first of these factors. For example, it upheld a New York law which imposed work requirements upon welfare recipients and denied benefits to some persons who would have qualified under federal standards. The Court found that the pervasive nature of the Social Security Act did not require preemption:

45. *New York State Dep't of Social Servs. v. Dublino,* 413 U.S. 405, 423 n.29 (1973). See also *Askew v. American Waterways Operators, Inc.,* 411 U.S. 325 (1973) (declining to preempt state law because it is impossible to determine until oil spills occur if there is any conflict); *Goldstein v. California,* 412 U.S. 546 (1973) (upholding California's prohibition of commercial reproduction of tape recordings in the face of federal copyright laws). In *Goldstein,* the Court noted that it "must be careful to distinguish between those situations in which the concurrent exercise of a power ... may possibly lead to conflicts and those situations where conflicts will necessarily arise." *Id.* at 554 (emphases in original).


48. *Id.* at 446. Implicit in this finding of no overlap was a finding of no federal occupation of a field broad enough to encompass the pollution control ordinance. *See id.* at 446 n.2. The case also demonstrates that the existence of a federal licensing scheme does not always imply preemption. *See L. Tribe, supra* note 31, at 389.


We reject, to begin with, the contention that preemption is to be inferred merely from the comprehensive character of the federal work incentive provisions. . . . The subjects of modern social and regulatory legislation often by their very nature require intricate and complex responses from the Congress, but without Congress necessarily intending its enactment as the exclusive means of meeting the problem.52

Federal regulation of a field should not be deemed preemptive of state regulatory power "unless that was the clear and manifest purpose of Congress"53 either because "the nature of the subject matter permits no other conclusion or [because] the Congress has unmistakably so ordained."54

Since contemporary Commerce Clause doctrine allows Congress broad power subject almost exclusively to external restrictions such as those found in the Bill of Rights, this clear statement rule is an important judicial device to reinforce the political safeguards of federalism. In particular, it promotes the accommodation of the institutional interests of states in congressional processes.55 By refusing to construe ambiguous legislation expansively, the Court can act to prevent Congress from avoiding hard questions of federal-state relations and thus can increase the likelihood that Congress will give full attention to the interests of the states and of those groups whose interests parallel the states'. Furthermore, such a judicial approach to statutory construction implicitly recognizes Congress' power to redefine the distribution of federal and state regulatory authority56—a power foreclosed to the states.57

Since one purpose of the rule is to insure that the states' interests are given adequate attention in Congress, the nature of the subject regulated may bear on the Court's application of the rule in resolving doubts concerning the exercise of supremacy.58 Where the characteristics of a field call for exclusive national jurisdiction, Congress is more likely to be concerned that concurrent state authority would interfere with achievement of federal goals. Moreover, federal preemption of state authority over an activity would meet with less opposition if the

57. The Court rightfully may be concerned that Congress might be less disposed to correct an overbroad interpretation of its legislative intent than an overly restrictive interpretation of that intent concerning the exercise of federal supremacy since the former would less often frustrate the effectuation of the federal scheme.
58. See L. Tribe, supra note 31, at 385-86.
states' interest in regulating that activity was less substantial. Thus, it is more likely that Congress may have reserved to itself a field the characteristics of which traditionally make it one for exclusive national jurisdiction. But where the subject is traditionally "local", and the states' interest in retaining significant authority to regulate is thus greater, total federal preemption will not be inferred in the absence of especially plain congressional intent to bar state authority over the same subject matter.

In the recent case of *Ray v. Atlantic Richfield Co.*, the Supreme Court reaffirmed many of the principles of the preemption doctrine outlined above. The case concerned the scope of preemption resulting from the Ports and Waterways Safety Act of 1972 (PWSA) and the extent to which the State of Washington could regulate the design, size, and movement of oil tankers on Puget Sound. All nine Justices found the state's requirement that certain tankers navigating in the Sound take on a state-licensed pilot to be in direct conflict with the PWSA, which prohibits states from requiring that pilots procure a license in addition to that issued by the United States. The Court also invalidated the state's stricter safety design standards, six Justices finding that the "statutory pattern shows that Congress, insofar as design characteristics are concerned, has entrusted to the Secretary [of Transportation] the duty of determining which oil tankers are sufficiently safe to be allowed to proceed in the navigable waters of the United States, indicating that Congress intended uniform national standards for design and construction of tankers that would foreclose the imposition of different or more stringent state requirements."

In distinguishing *Huron Portland Cement Co. v. Detroit*, discussed above, where structural modification of the vessel was required to bring it into compliance with the antipollution ordinance, the *Ray* majority indicated that a different purpose or different object sought to be

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60. Indeed, the standards upon which the Court relies in determining the likelihood that a particular field would be reserved for exclusive federal regulation parallel those that would be applied if the state regulation were challenged under the Commerce Clause. *See L. Tribe, supra* note 31, at 385.

61. *Cf. Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947): "In a field which the States have traditionally occupied . . . we start with the assumption that the historic police powers of the States were not to be [ousted] by the Federal Act unless that was the clear and manifest purpose of Congress."


63. *Id.* at 995.

64. *Id.* at 997. Justices Marshall, Brennan, and Rehnquist saw no need to reach the issue of the safety features as they were alternative to the tug escort requirement which the Court sustained. *Id.* at 1006 (Marshall, J., concurring).
achieved by a state enactment may militate against a finding that the state law is preempted.\textsuperscript{65}

The mere fact that a vessel has been inspected and found to comply with the Secretary's vessel safety regulations does not prevent a State or city from enforcing local laws having other purposes, such as a local smoke abatement law. \textit{Huron Portland Cement Co. v. Detroit}, ibid. But in none of the relevant cases sustaining the application of state laws to federally licensed or inspected vessels did the federal licensing or inspection procedure implement a substantive rule of federal law addressed to the object also sought to be achieved by the challenged state regulation. \textit{Huron Portland Cement Co. v. Detroit}, for example, made it plain that there was "no overlap between the scope of the federal ship inspection laws and that of the municipal ordinance. ..." there involved. \textit{Id.}, [362 U.S. 440] at 446. The purpose of the "federal inspection statutes [was] to insure the seagoing safety of vessels ... to [afford] protection from the perils of marine navigation," while "[b]y contrast the sole aim of the Detroit ordinance [was] the elimination of air pollution to protect the health and enhance the cleanliness of the local community." \textit{Id.} at 445.\textsuperscript{66}

The PWSA, directed at "insuring vessel safety and protecting the marine environment," was found to aim "precisely at the same ends" as the state law, "and the Secretary must issue all design and construction regulations that he deems necessary for these ends."\textsuperscript{67} Thus, the federal judgment that a vessel is safe must "prevail over the contrary state judgment."\textsuperscript{68}

On the other hand, \textit{Ray} also demonstrates that where the federal and state means do not conflict, similarity of purpose will not necessarily result in a finding of preemption.\textsuperscript{69} Thus, while the ends sought by the state action were those of insuring vessel safety and protecting the environment, the Court, by a seven to two majority, refused to invalidate the state's provision requiring that certain tankers use a tug escort while operating in the Sound:\textsuperscript{70}

\textsuperscript{65.} A holding invalidating state regulation for purposes not addressed by the federal action would create a substantial legal vacuum. \textit{Cf.} L. \textsc{Tribe}, \textit{supra} note 31, at 385.

\textsuperscript{66.} \textit{Ray v. Atlantic Richfield Co.}, 98 S. Ct. at 998 (ellipses and brackets in original).

\textsuperscript{67.} \textit{Id.}

\textsuperscript{68.} \textit{Id.}

\textsuperscript{69.} \textit{See also} Exxon Corp. v. Governor of Maryland, 98 S. Ct. 2207 (1978), discussed in note 44 \textit{supra}:

This Court is generally reluctant to infer pre-emption [citations], and it would be particularly inappropriate to do so in this case because the basic purposes of the state statute and the Robinson-Patman Act are similar. Both reflect a policy choice favoring the interest in equal treatment of all customers over the interest in allowing sellers freedom to make selective competitive decisions.

\textit{Id.} at 2217 (emphasis added) (Justice Blackmun concurred in the preemption portions of the Court's opinion; Justice Powell took no part in the case).

\textsuperscript{70.} Justices Stevens and Powell dissented from this portion of the Court's opinion. \textit{Ray v. Atlantic Richfield Co.}, 98 S. Ct. 988, 1009-10 (Stevens, J., concurring in part and dissenting in part).
Of course, that a tanker is certified under federal law as a safe vessel insofar as its design and construction characteristics are concerned does not mean that it is free to ignore otherwise valid state or federal rules or regulations that do not constitute design or construction specifications.\footnote{71} The Court recognized that a tug escort provision would be within the reach of the Secretary's authority, but noted that he had neither promulgated his own rule nor decided that no such requirement should be imposed at all. "It may be that rules will be forthcoming that will preempt the State's present tug escort rule, but until that occurs, the State's requirement need not give way under the Supremacy Clause."\footnote{72}

With these principles of statutory construction in mind, the scope of exclusive federal authority and the extent of permissible state authority to regulate nuclear activity can be examined.

III
STATE REGULATION OF NUCLEAR POWER PLANTS FOR PURPOSES OF PROTECTION FROM RADIATION HAZARDS

A. Northern States

In \textit{Northern States Power Co. v. Minnesota},\footnote{73} the only federal case dealing squarely with a claim that a state law purporting to regulate nuclear power plants was preempted by the Atomic Energy Act (AEA), the Eighth Circuit held that the State of Minnesota could not impose radioactive effluent standards more restrictive than those approved by the AEC.\footnote{74} The court noted that, because a plant could comply with

\footnote{71. \textit{Id.} at 1000.}
\footnote{72. \textit{Id.} at 1002. The finding that such a determination would be within the reach of the Secretary's authority is an essential prerequisite to the conclusion that forthcoming rules may preempt the tug escort provision. The federal-state balance may be altered only by congressional action. In another recent case, the Supreme Court vindicated California's contention that the Secretary of the Interior must comply with any condition of state law imposed on the appropriation and distribution of water in a federal reclamation project "that is not inconsistent with clear congressional directives respecting the project." California v. United States, 98 S. Ct. 2985 (1978). In a sharp dissent, Justice White, joined by Justices Brennan and Marshall, wrote that the Court "refuses to follow three prior cases construing § 8 [of the Reclamation Act of 1902, which reserved certain authority to the states (see note 114, infra)] much more narrowly than the present temporal majority finds acceptable." \textit{Id.} at 3004 (White, J., dissenting). The case clearly reflects the majority's increased determination to resolve doubts in favor of validating state action. See text accompanying note 30 supra.}
\footnote{73. 447 F.2d 1143, 3 ERC 1041 (8th Cir. 1971), \textit{aff'd mem.}, 405 U.S. 1035 (1972). \textit{Northern States} has been overruled by Congress in the context of radioactive air pollution. \textit{See} text accompanying notes 102-05 infra.}
\footnote{74. State courts have considered preemption under the AEA but have been generally content to rely heavily on \textit{Northern States} rather than engage in extensive analysis of con-}
both sets of regulations and because no provision of the AEA expressly reserved to the federal government "exclusive authority to regulate radiation emissions," it was "necessary to determine whether Congress has nevertheless manifested an intent to displace concurrent state regulation in this field." Relying on the language of the AEA, its legislative history, the pervasiveness of the federal regulatory scheme, and the "need for uniform controls in order to effectuate the objectives of Congress," the court found "that the states possess no authority to regulate radiation hazards" unless pursuant to a "turn-over" agreement under section 274(b). The court also indicated that a dual system of regulation might "unnecessarily stultify the industrial development and use of atomic energy" and thereby create an obstacle to the "legislative design to foster and encourage the development, use and control of atomic energy so as to make the maximum contribution to the general welfare and to increase the standard of living." The Supreme Court affirmed the holding in Northern States without issuing an opinion.

B. State Regulation of Radiation Hazards Other than Radioactive Effluent Level Limitations—Northern States Distinguished

The degree to which Congress has preempted the states from regulating nuclear energy activity for purposes of protection from radiation hazards is still an open question. Since the issue in Northern States was the states' authority to regulate radioactive discharges from nuclear power plants more stringently than the federal government, that case held only that federal regulation preempts state regulation of radioactive discharge levels as such, but not necessarily that federal regulation preempts state regulation of ancillary matters (e.g., plant siting and progressional intent. See Marshall v. Consumers Power Co., 65 Mich. App. 237, 237 N.W.2d 266 (1975); Commonwealth Edison Co. v. Pollution Control Bd., 5 Ill. App. 3d 800, 284 N.E.2d 342 (1972); New Jersey v. Jersey Central Power & Light Co., 69 N.J. 102, 351 A.2d 337 (1976).

75. Northern States, 447 F.2d at 1147; see text accompanying notes 39-40 supra.
76. The court was particularly impressed by this aspect of the congressional scheme. Id. at 1152-53. But see text accompanying note 52 supra.
77. Id. at 1153.
78. Id. at 1149-50; the Atomic Energy Act authorizes the AEC to enter into agreements with the governor of any state to discontinue federal authority over radiation hazards within the limits of the restrictions specified in § 274(c), 42 U.S.C. § 2021(c). AEA § 274(b), 42 U.S.C. § 2021(b) (1976). See note 88 infra.
79. Northern States, 447 F.2d at 1154.
80. Id. at 1153. But see note 94 infra. In a brief analysis, the court found such a legislative design from 42 U.S.C. §§ 2011, 2012 and the factual existence of an interstate transmission system in which power is traded by major subsystems. 447 F.2d at 1153. But see note 216 infra. See also note 162 and accompanying text infra.
82. This is true even absent Clean Air Act § 122, 42 U.S.C. § 7422 (West Supp. 1978); see text accompanying note 102 infra.
waste storage) undertaken to minimize ultimate hazards from radioactive discharges.\textsuperscript{83}

Clearly, the latter sort of state regulation would not squarely conflict with federal regulation of the operations of an ongoing federally licensed plant.\textsuperscript{84} Thus, a federal scheme designed to provide a minimal level of protection from radioactive hazards generally might leave individual states free to choose higher levels of protection so long as the state action does not interfere with federal control over radioactive discharges from plant operations.\textsuperscript{85}

If ambiguities concerning the scope of preemption under the AEA are to be properly resolved in favor of sustaining state action,\textsuperscript{86} then

\textsuperscript{83} "[T]he sole issue to be determined was whether the federal government . . . had exclusive authority to regulate the radioactive waste releases from nuclear power plants." \textit{Northern States}, 447 F.2d at 1144. Consequently, any statements in \textit{Northern States} to the effect that states are powerless to regulate radiation hazards in a manner other than by specifying a maximum level of radioactive discharges (see id. at 1145) are dicta.

\textsuperscript{84} The analogy to \textit{Ray v. Atlantic Richfield Co.} seems inescapable. While the state's more stringent tanker design safety standards were found to conflict with the congressional purpose to establish uniform national standards and with the federal determination that a vessel is safe, the Court sustained the state's jurisdiction to achieve, by means of a tug escort requirement, higher levels of safety and environmental protection than the federal scheme had provided. See text accompanying notes 62-69 \textit{supra}. Thus, the suggestion that preemption of safety-related state regulation be limited to preemption of a particular means of achieving safety, for example design specifications or operation standards, would not be based on a novel distinction.

\textsuperscript{85} Support for such a view can be found in the hearings on the 1959 Amendments to the AEA. For example, see the following dialogue regarding the scope of preemption:

\textit{Hearings Before the Joint Committee on Atomic Energy on Federal-State Relationships in the Atomic Energy Field}, 86th Cong., 1st Sess. 494 (1959) [hereinafter cited as \textit{Hearings}]. Indeed, in \textit{Train v. Colorado Public Interest Research Group}, 426 U.S. 1, 8 ERC 2057 (1975), the Supreme Court explicitly recognized: (1) that the NRC did \textit{not} have preemptive jurisdiction over "generally applicable environmental standards for the protection of the general environment from radioactive material" when such standards are promulgated by federal agencies other than the Commission, \textit{id.} at 24 n.20; and (2) that the Atomic Energy Act expressed no intent to preclude state regulation over subjects which federal agencies other than the NRC were permitted to regulate. \textit{id.} at 22. Juxtaposing this recognition to the Court's statement in \textit{Train} that \textit{Northern States} only precluded the states from "the setting of limitations on radioactive discharges from nuclear power plants," \textit{id.} at 16 n.12 (emphasis added), it becomes apparent that the Atomic Energy Act would not be held to ban state regulation of nuclear activities \textit{even for purposes of protection against radiation hazards so long as such regulation complements rather than undercuts federal controls governing such hazards.}

Moreover, the Supreme Court's growing solicitude for state autonomy in areas of vital local concern suggests that the Court will define the scope of federal preemption in the nuclear regulatory field as narrowly as vital national interests permit. See text accompanying note 211 \textit{infra}.

\textsuperscript{86} See text accompanying notes 53-61 \textit{supra}. 
Northern States must be interpreted narrowly. The 1959 Amendments\(^{87}\) to the 1954 Act add section 274,\(^{88}\) entitled "Cooperation with States", in order to clarify the respective responsibilities of the states and the AEC.\(^{89}\) Section 274 is still unclear, however, as to the extent to which states are preempted from regulating radiation hazards, and the legislative history indicates that the ambiguity was deliberate. During the hearings on the 1959 Amendments, several members of the Joint Committee on Atomic Energy expressed concern over the ambiguity and suggested even further clarification. The AEC position was as follows:

We thought that this act without saying in so many words did make clear that there is preemption here, but we have tried to avoid defining the precise extent of that preemption, feeling that it is better to leave


\(^{88}\) 42 U.S.C. § 2021 (1976) [hereinafter cited as section 274]. Under section 274 the AEC (now NRC) is authorized to enter into agreements with the Governor of any state for discontinuance, within certain limits, of the AEC's regulatory authority over by-product materials, source materials, and special nuclear materials in quantities not sufficient to form a critical mass. Id. § 2021(b). During the term of such an agreement, the state has express authority to regulate the materials covered by the agreement "for the protection of the public health and safety from radiation hazards." Id. (emphasis added). California was the second state to enter into such an agreement with the Commission. Radiation Control Law of 1962, CAL. HEALTH & SAFETY CODE §§ 25875-25876 (West 1967). To date, twenty-five states have become "Agreement States" by assuming regulatory authority pursuant to section 274. 1 NUC. REG. REP. (CCH) 19,001. Under the Commission's regulations describing the extent of the "discontinuance" of its own regulatory authority, 10 C.F.R. §§ 150.1-.30 (1977), the extent to which Agreement States are formally delegated broad regulatory authority over nuclear energy activity is also set forth. Agreements made pursuant to section 274 and subject to the regulations governing those agreements present several of the same ambiguities concerning the scope of federal preemption in the nuclear field that exist in the absence of such agreements. See Marshall v. Consumers Power Co., 65 Mich. App. 237, 237 N.W.2d 266 (1975). Section 274(c) prohibits the discontinuance of Commission authority with respect to regulation of certain specified activities, including "the construction and operation of any production or utilization facility." 42 U.S.C. § 2021(c) (1976). Despite the ambiguities of section 274, the very fact that the Commission has entered into an agreement with a state to "discontinue" its regulatory authority should weigh heavily toward resolving those ambiguities in favor of the Agreement State. Significantly, one court which has considered the preemptive reach of section 274(c) has said in dictum that section 274(c) "does not overlap with the exercise of state judicial power to insure the welfare of its citizens." Marshall v. Consumers Power Co., 65 Mich. App. at 237, 237 N.W.2d at 281.

\(^{89}\) AEA § 274(a), 42 U.S.C. § 2021(a) (1976). Indeed, California was itself interested in clarification of the federal and state roles in the regulation of nuclear activities to protect against radiation hazards. Thus in April, 1959, the California Legislature passed Assembly Joint Resolution No. 15, which resolved:

That the Legislature of the State of California respectfully memorializes The Congress of the United States to enact an amendment to the Atomic Energy Act of 1954 which will clarify the jurisdiction of a state with regard to the protection of the health and safety of the public from radiation hazards.

1958-59 Cal. Stats., ch. 138 p. 5640-41. Similarly, Governor Edmund G. Brown, Sr., of California wrote to the Chairman of the Joint Committee on Atomic Energy urging such an amendment. See Hearings, supra note 85, at 479.
these kind of detailed questions perhaps up to the courts later to be resolved. Representative Durham objected to the deliberate ambiguity of the 1959 Amendments on the ground that the task of defining the extent of preemption should not be left to the courts. Indeed, this sort of attempt to avoid dealing with hard questions of federal-state relations is exactly what the clear statement rule was devised to address—refining the political processes so that the states do not lose power through legislative omission followed by judicial fiat. Moreover, whatever the validity of the finding in Northern States that Minnesota's regulation conflicts with a congressional design to foster nuclear energy development, that reasoning is no longer sound in view of the 1974 Act's careful separation of promotional and regulatory activities in the nuclear field. The separation was partly a response to "growing criticism that there is a basic conflict between the AEC's regulation of nuclear power and its development and promotion of new technology for industry." Thus the regulatory provisions of the AEA can no longer be read to embrace promotional objectives. Additionally, the Department of Energy Reorganization Act of 1977 reaffirmed a goal expressed in the 1974 Act for balanced energy source

90. Hearings, supra note 85, at 308 (statement of Mr. Lowenstein). See also note 116 infra.
91. Id.: Representative Durham. I don't agree in writing an act like that. I think it should be clearly defined and understood what is our field and what is their field. Mr. Lowenstein [AEC representative]. I think this does do that, Mr. Durham. Representative Durham. I think so, too. If they want to set up a licensing system, they can do it. The courts will decide it, then, not us. I think the law should be as clear as possible to avoid litigation. I am not a lawyer, but I wonder if that is not a pretty clear statement of what we intended to do, and what we are writing into the Act.
92. See text accompanying notes 53-57 supra.
93. In fact, this legislative history moved the dissent in Northern States to conclude that the states were not even preempted from imposing reasonable radioactive effluent limitations: "Congress was aware of the problem and could have solved it readily by incorporating appropriate language into the Act. It refused to do so." Northern States, 447 F.2d at 1157 (Van Oosterhout, J., dissenting).
94. See note 80 supra; the dissent concluded: "the issue of the reasonableness of the state regulations and of whether they were so burdensome as to frustrate the development of atomic energy is not properly before us." Northern States, 447 F.2d at 1158 (Van Oosterhout, J., dissenting).
95. See note 1 supra.
97. Enactment of the Energy Reorganization Act of 1974 took the federal government out of the business of promoting atomic power in preference to other sources of energy. It declares that: the general welfare and the common defense and security require effective action to develop, and increase the efficiency and reliability of use of, all energy sources to meet the needs of present and future generations, . . .
98. See note 1 supra.
development, and declared an intent:

to place major emphasis on the development and commercial use of
solar, geothermal, recycling, and other technologies utilizing renewable
energy resources.

Plainly, the situation has changed radically since *Northern States*.

**C. The Clean Air Act Amendments of 1977**

No satisfactory analysis of state regulation of nuclear energy activity for purposes of protection against radiation hazards is complete without acknowledging recent federal legislation which has dramatically limited federal preemption of state regulation in the nuclear energy field and has reversed any possible presumption in favor of federal preemption. Section 122 of the Clean Air Act Amendments of 1977 transfers from the NRC to the EPA and the states the authority to set air quality standards and emission levels for, as well as requirements respecting the control of, radioactive air pollutants for purposes of protecting public health. As the Conference Report accompanying the bill explained:

Under [section 122], radioactive pollutants, including source material, special nuclear material, and byproduct material are covered by

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99. *See note 97 supra.*


101. In attempting to support his conclusion that there has "been little alteration" in the regulatory scheme despite the 1974 Amendments to the AEA, and that Congress has not "retreated from its commitment to the development of nuclear energy," 61 Op. Cal. Att'y. Gen. 159, 164, & n.18 (1978), the California Attorney General relied upon dicta from the recent case of Vermont Yankee Nuclear Power Corp. v. NRDC, 98 S. Ct. 1197, 11 ERC 1439 (1978), a case which did not involve preemption. Significantly, in quoting the Supreme Court to the effect that Congress had made a choice at least to try nuclear power, 61 Op. Cal. Att'y. Gen. at 164 n.19, the Attorney General stopped just short of the following passage in the High Court's opinion:

The fundamental policy questions appropriately resolved in Congress and in the state legislatures are not subject to reexamination in the federal courts. . . . Time may prove wrong the decision to develop nuclear energy, but it is Congress or the States within their appropriate agencies which must eventually make that judgment.

Vermont Yankee Nuclear Power Corp. v. NRDC, 98 S. Ct. at 1219, 11 ERC at 1454 (first and third emphases added).

102. 42 U.S.C.A. § 7422 (West Supp. 1978) [hereinafter cited as section 122]. Section 122 provides that the Administrator of the Environmental Protection Agency (EPA) shall determine whether emissions of radioactive pollutants "into the ambient air will cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health," and shall set appropriate standards and emissions limitations. Because radioactive emissions are thus deemed to be air pollutants under the Clean Air Act, the states may independently regulate such emissions under section 116 of the Clean Air Act, 42 U.S.C.A. § 7416 (West Supp. 1978), though not at standards less stringent than those set by the EPA:

[N]othing in this chapter shall preclude or deny the right of any state . . . 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 except . . . any emission standard or limitation which is less stringent [than one already set by the EPA].

*Id.* (emphasis added).
Section 116 [retention of state authority] of the Clean Air Act. Thus, any State, or political subdivision thereof, may establish standards more stringent than Federal, or where a Federal standards has not been established, may establish any standards they deem appropriate. Thus, the provision would not preempt States and localities from setting and enforcing stricter air pollution standards for radiation than the Federal standards, and would not follow the holding of *Northern States Power Co. v. State of Minnesota*, [citation] in the context of radioactive air pollution.103

When pressed on the floor of the House for a further explanation of the permissible scope of state and county regulation of nuclear energy activity under section 122, Representative Rogers, one of the floor managers of the 1977 Amendments, stated:

What section 122 does say is that the states may protect the ambient air and use their police powers to protect the health of the citizens in their area. This has always been true for other pollutants, and I see no reason for any exemption for radioactive pollutants.104

Section 122 demonstrates that Congress is not averse to allowing the states to regulate nuclear energy activity for the purpose of protecting their citizens from radiation hazards—at least in the context of radioactive air pollution. To be sure, this 1977 Amendment embodies the first explicit manifestation of congressional intent that the states may regulate nuclear energy activity for such a purpose.105 Consequently, state regulations predicated solely upon protection from radiation...
hazards may pose complex issues for some time. Therefore, although each of the California nuclear power plant siting provisions discussed below might serve to minimize radioactive air pollution, and perhaps could survive a preemption attack for this reason alone, an examination of the substantial non-radiation justifications of these provisions is in order. These non-radiation justifications by themselves demonstrate that the provisions are not preempted by federal law.

IV

STATE REGULATION OF NUCLEAR ENERGY ACTIVITIES FOR PURPOSES NOT DIRECTED AT CONTROLLING RADIATION HAZARDS

Even if the Supreme Court affirmed a broad reading of *Northern States* and interpreted the AEA to preempt state regulation for purposes of protection against radiation hazards (other than control of radioactive air pollutants), under subsection K of section 274 the states retain authority to regulate nuclear energy activities for a broad range of purposes notwithstanding the comprehensive regulatory scheme created by the 1954 Act. Subsection K provides:

Nothing in this section shall be construed to affect the authority of any State or local agency to regulate activities for purposes other than protection against radiation hazards.

...
The report of the Joint Committee on Atomic Energy accompanying section 274 explained that:

"Subsection K is intended to make it clear that the bill does not impair the State[s'] authority to regulate activities of AEC licensees for the manifold health, safety, and economic purposes other than radiation protection."

Moreover, in section 271 of the 1954 Act, Congress has from the beginning recognized the traditional authority of federal, state, and local agencies to regulate the generation, sale, or transmission of electric power. A report accompanying a clarifying amendment to section 271 in 1965 explained:

As amended, Section 271 would reaffirm a conclusion already implicit in the Atomic Energy Act of 1954, as amended. Nothing in that act adds to or detracts from any authority or regulations of any Federal, State, or local agency with respect to the generation, sale, or transmission of electric power produced through the use of nuclear facilities licensed by the AEC under the Atomic Energy Act of 1954, as amended... Accord-
ingly, persons licensed by the AEC and producing electric power through the use of such facilities are subject to AEC's control with respect to the common defense and security and protection of the health and safety of the public with respect to the special hazards associated with nuclear facilities, and otherwise to any and all applicable Federal, State, and local regulations with respect to the generation, sale, or transmission of electric power.\footnote{113}

It is therefore clear that the states retain the right to regulate nuclear energy activities at least for non-radiation purposes that relate to the generation, sale, or transmission of electric power generally.\footnote{114}

Arguably, state regulation for other lawful purposes may implicate an ancillary concern over radiation. Thus, a state's recognition that the nuclear waste problem may result in a burden on ratepayers necessarily stems from the great difficulty and expense involved in disposing of materials which could otherwise constitute a grave danger due to their radioactivity. However, even if Congress had not enacted Clean Air Act section 122,\footnote{115} and even if the states were deemed to be preempted from regulating nuclear energy activity for purposes of protection against radiation hazards, state regulations should not be considered preempted if they implicate those concerns only incidentally. First, the legislative history of the 1959 Amendments indicates that Congress intended to allow state regulation having an incidental effect upon the use of source, byproduct, and special nuclear materials licensed by the AEC.\footnote{116} Second, only imprudently narrow constructions of subsection


114. In the recent case of California v. United States, 98 S. Ct. 2985 (1978), the Court was asked to construe a section of the Reclamation Act of 1902 which reserved certain authority to the states relating to the “control, appropriation, use or distribution of water used in irrigation,” 43 U.S.C. § 383 (1970), in much the same manner that section 271 of the AEA reserves authority to the states “with respect to the generation, sale, or transmission of electric power.” 42 U.S.C. § 2018 (1976). The Court upheld the California State Water Resources Control Board’s attachment of conditions to the permits granted to the Bureau of Reclamation (allowing the Bureau to appropriate the water that would be impounded by the dam) as long as such conditions were not inconsistent with clear congressional directives respecting the project. The most important conditions prohibited full impoundment until the Bureau could show firm commitments, or at least a specific plan, for the use of the water. California v. United States, 98 S. Ct. at 2990. Similarly, California’s High Level Waste Disposal Provision conditions the siting of a federally licensed nuclear power plant on the demonstration of a specific plan for disposal of nuclear wastes created by the facility—a condition relating to the generation of electricity. See text accompanying notes 132-64 infra.

115. See text accompanying notes 102-05 supra.

116. As originally proposed, subsection K included this sentence:

It is the intention of this Act that state laws and regulations concerning the control of radiation hazards from by-product, source, and special nuclear materials shall not be applicable except pursuant to an agreement entered into with the Commission pursuant to Subsection b: provided, however, that states may adopt requirements for such materials and may inspect the use of such materials within the State to assure compliance with the Commission’s regulations.

This sentence was deleted from subsection K upon the AEC’s recommendation “to leave room for the courts to determine the applicability of particular State laws and regulations dealing with matters on the fringe of the preempted area in the light of all the provisions and
K and section 271 would forbid states from regulating atomic energy activities for purposes other than protection against radiation hazards simply because one foreseeable effect of such regulations is also to protect against radiation hazards. For example, a decision to locate an atomic reactor far from an active earthquake fault (e.g., to minimize fire hazards from broken transmissions lines) would incidentially limit risks of earthquake-induced radiation leakage.117

In any event, "the license granted by the AEC is merely a permit to construct a power plant, not a Federal order to do so."118 Therefore, if legitimate state interests lead a state to delay, relocate, or even reject a proposed nuclear power plant, the 1954 Act as amended cannot be treated as mandating a contrary choice.119

V

THE PURPOSES OF CALIFORNIA'S THREE NUCLEAR PROVISIONS

In order to meet its responsibilities towards its citizens for regulating public utilities, managing public resources, and maintaining public tranquility, and also its responsibilities towards future generations, a purposes of the Atomic Energy Act. . . . For example, in the absence of the sentence, the courts might have greater latitude in sustaining certain types of zoning requirements which have purposes other than control of radiation hazards, even though such requirements might have an incidental effect upon the use of source, by-product, and special nuclear materials licensed by the Commission." Letter from A.R. Luedecke (General Manager, AEC) to Chairman Anderson of the Joint Committee on Atomic Energy (August 26, 1959) in Hearings Before the Joint Comm. on Atomic Energy for Federal-State Relationships in the Atomic Energy Field, 86th Cong., 1st Sess. 500 (1959) [hereinafter cited as 1959 Hearings].

117. See Northern Cal. Assn. v. Public Util. Comm. 61 Cal. 2d 126, 390 P.2d 200, 37 Cal. Rptr. 432 (1964) (state P.U.C. has the authority to inquire into earthquake-related safety questions apart from radiation hazards); see also Southern California Edison Company, 62 Cal. Pub. Util. Comm. 651, 659-60, 54 P.U.R. 3d 378, 386 (1964) (P.U.C.'s inquiry into whether a proposed nuclear power plant would "result in undue [non-radiation] hazards to the public" or "create irreconcilable conflicts with conservation, aesthetics, and ecology" is legitimate); Marshall v. Consumers Power Co., 237 N.W.2d 266, 275 (1975) ("we are not prevented from considering plaintiff's allegations of nonradiological hazards from the plant, viz., the creation and effects of steam, fog, and icing in the winter from the operation of the plant's cooling pond" on common law nuisance theory). The Marshall court did add in dictum that measures to abate the nuisance could not be required if they made construction of the plant impossible, id. at 282, but that proposition was plainly unnecessary in deciding the case, and would be erroneous where the nuisance sought to be enjoined would otherwise cause serious deleterious consequences to state residents. Furthermore, under section 122 of the Clean Air Act, it is now conceivable that a state could validly set emission levels so low that no nuclear power plant could comply. See text accompanying note 102 supra. See also text accompanying notes 211-224 infra.


119. See also text accompanying notes 211-24 infra.
state has a duty and a right to: (1) require economy and efficiency in
the generation of electricity, (2) minimize the economic and social bur-
dens of nuclear reactor failure or catastrophe, (3) guarantee its citizens
maximum peace of mind concerning nuclear energy activity, and (4)
avoid irreconcilable conflict with sound principles of ecological man-
agement.

The following analysis demonstrates that each of California’s
three provisions regulating nuclear energy activity in the state promotes
these four characteristically state functions, which implicate, at most,
an incidental concern for protection from radiation hazards. There-
fore, none of the provisions is preempted by the Atomic Energy Act of
1954 or by any other federal provision.

A. Section 25524.1: The Fuel Rod Reprocessing and Storage Provision.

The first subsection of the Fuel Rod Reprocessing and Storage
Provision, subsection (a), conditions the state’s approval of reactors
“requiring the reprocessing of fuel rods” on its determination that a
reprocessing technology has been approved by the United States and in
fact exists. Subsection (b) conditions the approval of each individual
nuclear facility on the state’s finding that facilities with adequate ca-
pacity either to reprocess or to store spent fuel rods will be available as
needed by the plant.

Subsection (a) authorizes the state to meet its duties to the state’s
ratepayers and taxpayers by insuring that the techniques presupposed
by any given technology’s economical and safe implementation for the
production of electricity are in fact available. If an available
reprocessing technology is absent, the reason must be either that a tech-

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120. See text accompanying notes 59-61 supra.

121. Fuel rod reprocessing involves the recovery of residual uranium and plutonium
from spent fuel rods, which must otherwise be stored, for future use as nuclear fuel.

122. CAL. PUB. RES. CODE § 25524.1 (West 1977). Thus, the provision’s reference in
subsection (a) to nuclear fission thermal power plants “requiring the reprocessing of fuel
rods” contemplates only those nuclear plants that (1) produce spent fuel, i.e., converter
rather than breeder reactors, and (2) either lack adequate capacity to store such spent fuel
and in this sense “require” reprocessing, or for some other reason cannot function economi-
cally without reprocessing the spent fuel, perhaps because of the limited supply of natural
uranium and the relative inefficiency of its conversion into energy in the initial fuel cycle.
Whether reprocessing would ever be both necessary and sufficient to overcome problems
of economics and resource conservation and thus be “required” by certain reactors, is a much
controverted issue that need not be resolved in assessing this provision’s constitutional valid-
ity. Indeed, since the Energy Commission has found that subsection (a) is not presently
applicable to any reactors in California because reprocessing is not “required,” see text ac-
companying note 109 supra, a constitutional challenge to this subsection would presently
raise questions as to justiciability. But see Carolina Environmental Study Group Inc. v.

123. There is of course no basis for supposing that the state will exercise this power so as
to deny that an available technology in fact exists. Such an abuse could be met by a federal
court at the time it arises, and the possibility does not constitute an infirmity in the law itself.
nology has not been developed or that it is not yet possible fully to secure against theft of the nuclear materials being reprocessed. The latter prospect is a source of concern to the state's entire populace, and particularly to its taxpayers, who might be forced to finance enormously burdensome programs to track down and recover any stolen nuclear materials. It is widely acknowledged that extending the fuel cycle to reprocessing would "greatly increase the available . . . opportunities for proliferation of nuclear weapons and of theft of weapons materials"—in particular, plutonium. The theft of nuclear weapons material could potentially require vast outlays of state resources to meet acts of extortion and threats of violence—not to mention the expenditures that would be required to manage the resulting disaster if such a threat were carried out. California, then, has a strong interest in minimizing the risk of nuclear materials theft implicit in fuel rod reprocessing.

Through subsection (b), which conditions individual plant ap-

124. See text accompanying note 17 supra.
125. Report of the Nuclear Energy Policy Study Group, Nuclear Power Issues and Choices 331 (1977) [hereinafter cited as Issues and Choices]. See Letter from the President's Council on Environmental Quality (CEQ) to the AEC, January 20, 1977, 2 NUC. REG. REP. (CCH) ¶ 20,033 ("The potential impact of the diversion and illicit use of special nuclear materials [is] well recognized. The threat is so grave that it could determine the acceptability of plutonium recycle as a viable component of this Nation's nuclear electric system"); Statement by the President on Nuclear Power Policy, April 7, 1977, 2 NUC. REG. REP. (CCH) ¶ 20,051 (recognizing that the dangers of proliferation of nuclear weapons "would be vastly increased by the further spread of sensitive technologies which entail direct access to plutonium, highly enriched uranium, or other weapons usable material," the U.S. "will defer indefinitely the commercial reprocessing and recycling of the plutonium produced in the U.S. nuclear power programs," and will provide "neither federal encouragement nor funding [to a Barnwell, South Carolina plant under construction] for its completion as a reprocessing facility"). Some observers doubt that a ban on recycling will fully meet the President's concerns. See Statement of Joseph M. Hendrie, Chairman of the NRC, before House Science and Technology Subcommittee, September 27, 1977, 8 ENVIR. REP. (BNA) 838 (1977) ("any use of uranium fuel will generate some plutonium"). Others believe a technology may be developed which could reprocess spent fuel without producing weapons-grade plutonium. See New York Times, February 28, 1978, at 1, col. 6.
127. The annual cost to the nation of safeguarding against nuclear theft has been estimated to be $800 million by 1980; this cost would ultimately be passed on to the consumers of nuclear power. M. Willrich & T. Taylor, Nuclear Theft: Risks and Safeguards, A Report to the Energy Policy Project of the Ford Foundation 163, 165 (1974). Hence, the expected costs of safeguarding against nuclear theft and responding to it are substantial; indeed, the prospect that reprocessing could significantly increase these costs might legitimately lead a state to deny siting to all facilities requiring such reprocessing even if a reprocessing technology were approved by the federal government. Although increased costs attendant to reprocessing might not be so large as to make nuclear power unable to compete economically, there is no reason why ratepayers or taxpayers should be burdened unnecessarily with these costs.
proval on the availability of adequate reprocessing or storage facilities, the state meets its duties to ratepayers by insuring that reactors will operate efficiently. A reactor's spent fuel must either be reprocessed or stored. If neither alternative, nor a satisfactory combination of the two, is available, the reactor will necessarily be shut down. In that case, the state's ratepayers will have received nothing from the potentially unsafe and uneconomical venture. As a leading representative of the nuclear industry explains:

[A] shutdown does not represent a serious safety problem, but it does represent an economic embarrassment of the highest sort. Each one of those big reactors represents about a half-billion dollars investment, and the thought of these most economical power producers, or already troubled utility systems, becoming idle is a picture I believe we do not care to help in painting—any one of us. Further, for each idle reactor the utility must find and fuel alternate generating capacity. Replacement fuel alone, if generating capacity is available, amounts to about 10 million barrels for each idle reactor.128

In fact, as the economic benefits of reprocessing have been seriously questioned and the spotlight therefore trained on storage,129 the possibility of widespread shutdowns has become serious.130

In sum, the Fuel Rod Reprocessing and Storage Provision is not concerned with protection against radiation hazards except perhaps tangentially.131 On the contrary, each of the two interests served by the provision, limiting the economic burdens associated with reactors producing spent fuel and minimizing the costs of preventing theft of nuclear materials, plainly falls within the sphere of state functions which are not federally preempted.

B. Section 25524.2: The High-Level Waste Disposal Provision.

High-level radioactive wastes,132 which consist of certain fission products and non-fission by-products, are so radiotoxic that they must be permanently removed from the biosphere: "If there is even a small

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129. See note 17 supra.

130. As of September, 1977, ERDA was predicting that, "unless measures are taken soon to provide additional storage space for spent nuclear fuel, a shutdown of as many as 23 nuclear powerplants is probable in the next decade." 8 ENVIR. REP. (BNA) 839 (1977). Indeed, Energy officials reportedly expect spent fuel storage demands to outstrip storage facilities by 1981-82. Id. at 948 (1977).

131. Certainly the State of California may recognize that reprocessing and storage are difficult and expensive partly as result of the special precautions that must be taken to guard against radiation hazards. See text accompanying notes 115-17 supra.

132. For a general discussion of nuclear waste, including high-level waste, see Issues and Choices, supra note 125, at 243-67.
risk that large quantities of radiotoxic waste might someday find their way into the human environment with consequences which threaten the future of civilization, most would question the right of contemporary society to create this hazard." While these high-level wastes remain stored in surface or near-surface facilities awaiting the development of a technology for their permanent disposal, they carry an immediate potential for immeasurable devastation as a result of accident or vandalism or terrorism.

The High-Level Waste Disposal Provision delays approval of nuclear fission thermal power plants in California both until the Energy Commission finds that the NRC "has approved and there exists a demonstrated technology or means for the disposal of high-level nuclear waste," and until the legislature has reviewed the Energy Commission's findings. The provision does not "necessarily require that

133. Id. at 254-55. The Council on Environmental Quality (CEQ), a White House advisory agency, favors "a national decision which would make the expanded use of nuclear power contingent on a clear and convincing showing, after consideration of both technical and institutional factors, that nuclear power's deadly byproducts can be safely contained for geologic periods." Address by J. Speth, CEQ member, September 29, 1977, before the American Law Institute-American Bar Association Conference, 8 ENVIR. REP. (BNA) 855 (1977). This emphasis on the need for a permanent solution to the disposal problem is well taken since, even with an immediate halt to all radioactive waste-generating activities, "we would still be faced with a major radioactive waste disposal problem." M. Canfield, Jr., Director of GAO's Energy and Minerals Division, Statement before the House Government Operations Subcommittee on Environment, Energy, and Natural Resources, September 12, 1977. 8 ENVIR. REP. (BNA) 749 (1977).

134. CAL. PUB. RES. CODE § 25524.2 (West 1977). Other states have recently enacted similar provisions. In the summer of 1977, Maine enacted legislation providing that no construction of a nuclear power plant may begin in the state until the P.U.C. finds that the federal government has approved, and that there exists, a demonstrable technology or means of high-level nuclear waste disposal. After making this finding, the P.U.C. may certify a nuclear power plant if it determines that (1) facilities with capacity to contain high-level waste will be in operation when the plant being certified requires them, and (2) the waste disposal proposed for the plant conforms with the technology approved by the federal government. ME. REV. STAT. tit. 10, § 253 (1977). Wisconsin's Public Services Commission issued an order on August 17, 1978, prohibiting further spending by Wisconsin utilities on nuclear power plant development until the federal government institutes a program regulating nuclear waste disposal and plant decommissioning and proves its effectiveness. The Commission emphasized that the moratorium order was made primarily on economic, rather than on environmental, grounds. 9 ENVIR. REP. (BNA) 707-08 (1978). Iowa's Commerce Commission has established rules governing nuclear power plant planning and construction, requiring filing of project costs and economic justification. Id. New York is also considering whether more nuclear plants should be built until the problem of radioactive waste management is resolved. New York Puts Together Its Own State Energy Policy and Plan, 199 SCIENCE 864, 868 (Feb. 24, 1978). Most recently, Montana voters approved a measure imposing strict restrictions on construction of nuclear power plants. Opponents said its passage amounted to a ban. How Voters in 38 States Did Their Own Lawmaking, San Francisco Chronicle, Nov. 9, 1978 at 13. Minnesota has enacted legislation prohibiting the construction and operation of a radioactive waste management facility without the express approval of the state legislature. NUC. REG. REP. (CCH) No. 100, at 3 (1977). A new Vermont law requires approval by the General Assembly before a facility for storing, reprocessing, or disposing of spent nuclear fuel elements can be constructed, and New Mex-
facilities for the application of such technology and/or means be available at the time the commission makes it findings,” *i.e.* that disposal actually be feasible at such time. Nor does the provision “necessarily preclude the possibility of an approved process for retrieval of such waste.” Rather, it requires a delay until “permanent and terminal disposition of high-level nuclear waste” can be achieved through an existing technology.

California makes no attempt to usurp the federal role in controlling high-level waste as such through this provision; the state merely guarantees that its citizens need not bear the psychic and economic costs of having to manage high-level waste with no assurance of an eventual “permanent and terminal” disposal. Even if the states may not directly control radiation hazards (other than radioactive air emissions), California could not, and need not, be blind to the fact that indefinite accumulation of highly radioactive materials would pose problems of uncertain, but certainly mounting, magnitude. Some of those problems are associated with the technically difficult and costly containment of radioactive wastes. Other problems flow from the public anxiety inevitably associated with the manifest difficulties of this containment, and from the many tangible and troubling symptoms of social unrest to which such unrelieved anxiety can contribute.

To deal with these problems, California has conditioned permission to

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135. CAL. PUB. RES. CODE § 25524.2(c) (West 1977). Thus the provision is in harmony with the policy of the Carter Administration, announced October 18, 1977, which calls for retrievable storage rather than permanent disposal, 8 ENVIR. REP. (BNA) 948 (1977), and with the position of the Nuclear Energy Policy Study Group. *Issues and Choices, supra* note 125, at 254.

136. See text accompanying notes 115-17 *supra*. See also text accompanying note 201 *infra*.

137. See note 152 *infra*; see also *Issues and Choices, supra* note 125, at 243-67; and see text accompanying notes 124-31 *supra*.

138. As ERDA recognized:

> [The public] fears[] that the radioactive waste generated . . . will either be neglected, and thus place an unacceptable hazard potential on mankind, or be managed in a way that will place an unacceptable burden on future generations to assure continued public safety. [T]hese . . . fears . . . are supported by a fair segment of the scientific community—many of whom otherwise support the use of nuclear reactors for the generation of electric power.


139. See note 138 *supra*. The public’s misgivings about nuclear energy grow in proportion to the precautions which must be taken to guard against the mishaps of a flawed technology; popular resistance to nuclear development may rise correspondingly until the advocates of atomic power will face an insurmountable task of allaying public fears too long left to fester. See, e.g., *Hundreds Arrested at New Hampshire Atom Protest*, N.Y. Times, May 2, 1977, § 1, at 1 (describing the chore of processing over a thousand arrests resulting from a protest against the construction of a nuclear energy plant in Seabrook, New Hampshire); *150 Protesters at A-Plant Arrested*, Los Angeles Times, August 7, 1978, § 1, at 3 (estimating that
construct new nuclear power plants within the state upon an appropriately documented federal determination that the containment problem can be permanently solved.\textsuperscript{140}

By insisting upon such a showing, the State of California protects its citizens not only from the hazards of radiation but also from the anxieties of uncertainty.\textsuperscript{141} Similarly, the state might insist that no nuclear power plant be constructed in a densely populated area in the state without a properly documented federal certification that the plant has filed a long-term plan of operation in full compliance with all relevant federal safety standards. California seeks by the High-Level Waste Disposal Provision not to displace the federal government's expressed commitment to nuclear safety,\textsuperscript{142} but simply to insist that this commitment be made meaningful.\textsuperscript{143} Since California seeks to elimi-

2,500 persons participated in a demonstration to protest the completion of Pacific Gas and Electric Co.'s nuclear energy plant in Diablo Canyon, California).\textsuperscript{140} Similar concerns may lie behind recent state efforts to exercise authority over waste storage or disposal facilities. See note 134 supra. The possibility that states with "optimum" disposal sites will refuse to permit disposal within their borders is further reason for California's citizens to fear that permanent disposal will not become available. \textit{Cf.} Philadelphia v. New Jersey, 98 S. Ct. 2531 (1978) (although Commerce Clause precludes state from discriminating against out-of-state municipal wastes, state may constitutionally restrict the flow of all wastes into its landfill sites.).\textsuperscript{141}

A leading early article drew a clear distinction between state regulation to reduce radiation hazards and state regulation to allay public anxieties induced by those hazards. \textit{Cavers, State Responsibility in the Regulation of Atomic Reactors}, 50 Ky. L.J. 29, 51 (1961).\textsuperscript{142}

In setting forth the purposes of the 1954 Act, Congress made clear its intent that atomic energy be developed and utilized only "to the maximum extent consistent with . . . the health and safety of the public." \textit{42 U.S.C. § 2013, as amended} (1976).\textsuperscript{143}

In effect, California asks only that the federal government embody its concern with the safety of nuclear waste accumulations in a clear and permanent solution rather than in a mere hope before more nuclear power plants are built. As the D.C. Circuit rightly observed in \textit{Natural Resources Defense Council v. NRC}, 547 F.2d 633 (D.C. Cir. 1976), \textit{rev'd and remanded on other grounds}, Vermont Yankee Nuclear Power Corp. v. NRDC, 98 S. Ct. 1197 (1978):

\begin{quote}
Once a series of reactors is operating, it is too late to consider whether the wastes they generate should have been produced, no matter how costly and impractical reprocessing and waste disposal turns out to be; all that remains are engineering details to make the best of the situation that has been created.
\end{quote}

\textit{547 F.2d at 640. The House Report on the Clean Air Act Amendments of 1977 includes the following ominous assessment of the federal government's waste disposal program:}

\begin{quote}
In sum, for disposal of four major categories of radio-active waste—spent fuel, decommissioning wastes, gaseous wastes, and purified plutonium—the needed technology, regulatory requirements, and projected environmental impacts have probably not even begun to be analyzed seriously.

For the remaining categories—high-level reprocessing wastes, transuranic wastes, and low-level wastes—major uncertainties and inadequacies plague present disposal programs.

Not only is the demonstrated technology for managing these major categories of radioactive wastes either undeveloped or inadequate, but a recent Government-sponsored study has called the existing Government organization intended to manage the wastes "unworkable" and has labeled the existing framework for Government regulation of waste disposal programs "ineffective."
\end{quote}

nate land-use which creates a continuing source of public fear and unrest, it is exercising a traditional land-use power \(^\text{144}\) "for purposes other than protection against radiation hazards." \(^\text{145}\)

It may be argued that California, by requiring "a method for the permanent and terminal disposition of high-level nuclear waste" \(^\text{146}\) instead of a sufficiently safe method of containing the waste from year to year, has gone beyond the legitimate protection of its citizens' peace of mind. To the extent that a storage or containment technology is truly safe for a sufficient period of time to render the wastes non-radiotoxic, \(^\text{147}\) one might well regard it as a form of "permanent and terminal disposition." \(^\text{148}\) Hence, this argument represents a semantic quibble rather than a serious constitutional challenge. The key difference, after all, between the "promising alternative" of "disposal in deep holes" \(^\text{149}\) and currently available means of storage is that the deep-hole method would avoid the continuing anxieties over whether high-level nuclear wastes are truly being contained rather than bequeathed to the

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144. The traditional concern for handling non-nuclear wastes produced by all industrial facilities in the state demonstrates that California's concerns are not unique to nuclear wastes. The California Solid Waste Management and Resource Recovery Act of 1972, \textit{Cal. Gov't Code} §§ 66700-96.82 (West Supp. 1978), recognizes that a variety of wastes may create "conditions which threaten the public health, safety, and well-being" (\textit{Cal. Gov't Code} § 66701 (West Supp. 1978)), and the regulations adopted pursuant to that Act make the owner or tenant of any factory or other premises responsible for the safe storage and satisfactory removal of all wastes accumulated on the property. \textit{14 Cal. Admin. Code} §§ 17311, 17331 (1975). "[T]he legislative concern with and intent to insure the efficient handling and disposal of both types of wastes is identical. In the legislative and public mind, the necessity for the public well-being requires that the state not take action to authorize land uses that create wastes unless it is clear that such wastes will be handled and disposed of efficiently." \textit{ERCDC Memorandum, supra} note 110, at 13. See also text accompanying note 193 infra.


147. The radiotoxicity of wastes is a function of the types of radiation they emit, the energy of the radiation, and the rate of disintegration which releases the radiation. The radiotoxicity diminishes as the radionuclides decay to stable nonradioactive elements. The rate of disintegration is expressed as the time required for half the original mass to decay—the half life. \textit{ERCDC Report, supra} note 19, at 121. The Energy Commission estimates the time required for long-lived components of waste to reach safe levels of radiotoxicity at approximately 1000 to 1500 years. \textit{Id.} at 122.

148. Although there is virtually universal recognition of the need for permanent removal of high-level wastes from the biosphere, see note 133 and accompanying text \textit{supra}, observers do distinguish between disposal (defined as permanent removal) and storage (defined as temporary management). \textit{See Issues and Choices, supra} note 125, at 243-67.

149. \textit{Id.} at 257-60. At the end of 1976, ERDA announced that it would expand its study of deep underground formations within the United States to gather \textit{preliminary} data on the suitability of geologic disposal for safe, terminal storage of commercial nuclear wastes. \textit{Statement of ERDA No. 76-355, December 2, 1976, 2 Nuc. Reg. Rep. (CCH) ¶ 20,046.} In October 1976, President Ford instructed ERDA to "speed up its program to demonstrate all components of waste management technology by 1978, and to demonstrate a complete repository for commercial high-level nuclear wastes by 1985." \textit{2 Nuc. Reg. Rep. (CCH) ¶ 20,043. See also note 19 supra.}
Furthermore, "permanent and terminal disposition" requires only a one-time rather than a continual and indefinite expense. Accordingly, California seeks not only peace of mind for its citizens but also an approach economically superior to indefinite year-to-year storage. The half-lives of many of the elements in high-level nuclear waste are so long that a perpetual annual burden for surface or near-surface storage is economically frightening whatever the other risks.\textsuperscript{151} It is generally agreed that eventual terminal disposition, eliminating continuing costly attention to storage systems, is imperative.\textsuperscript{152} Therefore, by in-

\textsuperscript{150} Although a democratic institution provides no direct voice for future generations, John Rawls argues that a democrat's "conception of justice includes a provision for the just claims of future generations."\textsuperscript{139} J. RAWLS, A THEORY OF JUSTICE 296 (1971). Thus, even under a just constitution embracing the position that electoral choice is more likely to be correct than a government empowered to override it, the people may still decide wrongly, and "[b]y causing irreversible damages say, they may perpetuate grave offenses against other generations."\textsuperscript{140} In such cases, Rawls suggests "there is no reason why a democrat may not oppose the public will by suitable forms of noncompliance, or even as a government official try to circumvent it."\textsuperscript{141} He continues:

Although one believes in the soundness of a democratic constitution and accepts the duty to support it, the duty to comply with particular laws may be overridden in situations where the collective judgment is sufficiently unjust. There is nothing sacrosanct about the public decision concerning the level of savings; and its bias with respect to time preference deserves no special respect. In fact the absence of the injured parties, the future generations, makes it all the more open to question. One does not cease to be a democrat unless one thinks that some other form of government would be better and one's efforts are directed to this end. As long as one does not believe this, but thinks instead that appropriate forms of noncompliance, for example, acts of civil disobedience or conscientious refusal, are both necessary and reasonable ways to correct democratically enacted policies, then one's conduct is consistent with accepting a democratic constitution.

\textit{Id.} at 296-97. See note 139 \textit{supra}.

\textsuperscript{151} On October 18, 1977, the Carter Administration called for the United States to take title to spent fuel and store it in a retrievable fashion at a government-approved storage site. Under this policy, a one-time storage fee would be charged to the spent fuel producer to cover the costs of interim storage. 8 \textit{ENVIR. REP.} (BNA) 948 (1977). This proposed one-time storage fee policy cannot eliminate California's cost concerns. Nuclear advocates and critics alike have attacked the plan and the future of the policy is therefore uncertain. Compare remark of Gregg Thomas of the Sierra Club (The one-time fee will represent a "bail-out" for industry if it is set lower than the true costs of storage and disposal, and there will be no full cost-recovery if the true costs are properly charged to the utility), with statement of Carl Goldstein of the Atomic Industrial Forum (Although the policy would remove the problem of waste disposal from the nuclear power industry, it ignores the fact that it is the residual value of spent fuel that makes reprocessing cost-effective). 8 \textit{ENVIR. REP.} (BNA) 972-73 (1977). Furthermore, it is possible that Congress might enact legislation compelling perpetual payments to subsidize long-term waste management without guaranteeing permanent high-level waste disposal. Sen. Mathias introduced just such legislation in the last session of Congress, The Nuclear Waste Management Act of 1977. S. 2189, 95th Cong., 1st Sess. § 301(d)(3) (1977).

\textsuperscript{152} The amount of high-level radioactive waste in the form of spent fuel, now stored on-site, is projected to increase from a present 2,500 metric tons to 25,000 metric tons by 1985, causing continuing distress to any long-term planner. \textit{Radioactive Waste Inventory}, 195 \textit{SCIENCE} 661 (1977). Total waste management for both military and commercial wastes could require $1 to $2 billion a year for the next two decades. \textit{Radioactive Wastes—Some Urgent Unfinished Business}, 195 \textit{SCIENCE} 661 (1977).
sisting that such eventual disposition be linked to an actual technology before permitting new nuclear plants, California has asked for nothing that the federal government should be inclined to withhold; it has asked only to exchange a potentially empty promise for a specific strategy.\textsuperscript{153}

California's preference for a waste management solution involving a single, lump-sum expenditure for each volume of high-level nuclear waste should thus violate no federal law, principle, or policy.\textsuperscript{154} Even if federal officials prefer to locate nuclear power plants before deciding whether and when to replace indefinite storage with disposal,\textsuperscript{155} such a federal choice could not be imposed upon the states in view of section 271's assurance that nothing in the Act "shall be construed to affect the authority or regulations of any federal, state, or local agency with respect to the generation, sale, or transmission of electric power produced through the use of nuclear facilities licensed by the Commission."\textsuperscript{156} A state's rejection of an electric power source that reasonably appears to create a source of indefinitely growing back-charges to ratepayers no more than exercises the authority recognized by section 271. In other words, to require that commercial electric power shall not be generated until it is clear that the economic burden of using such power can be fully discharged in a finite time, is only to impose a rational economic constraint on the generation and sale of electricity. Furthermore, such an economic preference would fall within the traditional state function of regulating public utilities—insuring that they provide adequate services at reasonable rates.\textsuperscript{157}

\textsuperscript{153}. It bears repeating that the California Energy Commission could not find "that even the initial steps necessary for federal approval of waste disposal technology" have been completed. Decision, \textit{supra} note 15, at 4. \textit{See also} note 143 \textit{supra}.

\textsuperscript{154}. \textit{See also} note 157 \textit{infra}.

\textsuperscript{155}. Implicit in this hypothetical situation is the further assumption that such a federal choice could otherwise be regarded as authorized by the AEA. \textit{But see} note 142 \textit{supra}.

\textsuperscript{156}. 42 U.S.C. \S\ 2018 (1976).

\textsuperscript{157}. For example, a state under its regulatory authority could inquire into the prudence of investments by public utility companies into nuclear power reactors, and could exclude such investments from the rate base if they were determined to be imprudent. \textit{See}, e.g., \textit{CAL. PUB. UTIL. CODE} \S\ 728 (West 1975); San Francisco v. P.U.C., 6 Cal. 3d 119, 126, 490 P.2d 798, 801, 98 Cal. Rptr. 286, 289 (1972) (P.U.C. has power to prevent utility from passing on to ratepayers unreasonable costs for materials and services by disallowing expenditures that the commission finds unreasonable). The effect of such an exclusion might be to prevent the development of nuclear energy within the state, \textit{see} In the Matter of Proposed Construction of Major Utility Plant, No. RES. 75-1, before the Iowa State Commerce Commission (Statement of Intent, August 19, 1975) ("With the investment magnitude of generation facilities, should a significant part of such investment be excluded from rate base as being an imprudent investment, the impact could very well be destructive to the ability of the utility involved to attract capital or could even result in bankruptcy"). 2 \textit{NUC. REG. REP. (CCH)} \# 20,017, but such a result by itself would certainly not invalidate a decision of a state regulatory agency reached in the course of the proper discharge of its responsibilities. \textit{Id.} Furthermore, it is not clear that the federal government could compel a state to invest its resources in a losing venture. \textit{See text accompanying notes} 211-24 \textit{infra}.
Additionally, as long as a permanent disposal method remains speculative, the increasing volume of stored wastes may place an "unacceptable burden on future generations." To meet such concerns, California may legitimately proscribe the generation of electricity by methods which will create irreconcilable conflicts with proper management of the environment.

Critics of the nuclear waste disposal requirement might suggest that the technological assurance California seeks will be unavailable for such a long period that the provision unreasonably delays the location of any new nuclear power plants in the state. It is quite possible, however, that a satisfactory disposal technology is forthcoming. Furthermore, it begs the question to define a delay as "unreasonable" simply because it is long. Assuming that the state's insistence on a method of permanent and terminal disposition is otherwise justifiable, such insistence does not become unreasonable simply because the delay is longer than might be hoped.

In sum, to the extent the waste disposal provision reflects these non-radiation purposes, it is plainly not preempted. Even the Northern States court, in believing the 1954 Act evinced a legislative policy to foster atomic energy development, recognized that only state regulations that "unnecessarily" conflict with such a policy could be preempted thereby. The court in Northern States was concerned that states might be overprotective in the area of health and safety—an area

158. See note 138 supra.
159. Southern California Edison Co., 62 Cal. Pub. Util. Comm. 651, 659-60, 54 P.U.R.3d 378, 386 (1964). See generally J. Rawls, supra note 150, at 284-98. Rawls argues that "[t]he life of a people is conceived as a scheme of cooperation spread out in historical time," id. at 289, and that "persons in different generations have duties and obligations to one another just as contemporaries do. The present generation cannot do as it pleases but is bound by the principles that would be chosen in the original position to define justice between persons at different moments of time." Id. at 293. Rawls admits the difficulties of defining precise limits of what the rate of savings should be to achieve justice between generations, id. at 286, but certainly the concept of a "just savings" to provide for a continuing rise in the standard of civilization and culture embraces the familiar notion of avoiding waste and requires the maintenance of an environment capable of the conditions necessary for just institutions. Cf. id. at 298. In this regard the United States Constitution was established in part to "secure the Blessings of Liberty to ourselves and our Posterity," U.S. Constitution, Preamble, and the California Constitution was established similarly "in order to secure and perpetuate" the blessings of freedom. California Constitution, Preamble.

160. Whether the nuclear waste disposal requirement would be deemed preempted even if its effect was wholly to obstruct nuclear development is itself uncertain. See text accompanying notes 94-101 supra; see also text accompanying notes 211-24 infra.
161. Northern States, 447 F.2d at 1153-54. And cf. Exxon Corp. v. Governor of Maryland, 98 S. Ct. 2207 (1978). (The Court explicitly recognized the conflict between the state anti-price discrimination statute and the central policy of the Sherman Act to promote competition, but held that "this sort of conflict cannot itself constitute a sufficient reason for invalidating the [state] statute. For if an adverse effect on competition were, in and of itself, enough to render a state statute invalid, the States' power to engage in economic regulation would be effectively destroyed." Id. at 2216.)
specifically addressed by the federal scheme.\textsuperscript{162} But state requirements not directed at radiation safety would not be duplicative of federal efforts, and a holding of preemption in such a case would create a legal vacuum.\textsuperscript{163} It is no wonder that AEA section 274, enacted to clarify the respective responsibilities of the states and the federal government, explicitly reserved regulatory authority to the states for non-radiation purposes.\textsuperscript{164} This division of responsibility should apply without regard to the effect on the progress of nuclear power development.

\section*{C. Section 25524.3: The Berm Containment and Undergrounding Provision}

The final section of California's nuclear power plant siting legislation requires the state Energy Commission: (1) to determine whether undergrounding (building reactors in caverns excavated in solid rock) and berm containment (surrounding reactors with large earthen mounds) are necessary, effective, and economically feasible methods of siting nuclear reactors, and (2) to decide whether to promulgate regulations requiring that nuclear reactors be either undergrounded or berm-contained. The legislature has one year to review the Energy Commission's conclusions and recommendations. No nuclear fission thermal power plant may be certified until the requirements of the section have been met, nor may construction to install permanent equipment or structures begin until then.\textsuperscript{165} This provision is not a mandate that nuclear reactors be berm-contained or undergrounded, and it delays approval of nuclear reactors for only two years\textsuperscript{166} while the state ascertains the extent to which regulation of either technique would discharge its several sovereign state functions.\textsuperscript{167}

\textsuperscript{162} Northern States, 447 F.2d at 1153-54. Since the Northern States court set out to determine whether Congress intended to occupy the field of radioactive emissions regulation, \textit{id.} at 1147, the finding that Congress intended to encourage nuclear development to the maximum extent consistent with public health and safety simply provided support for the conclusion that Congress reserved to the AEC "the authority to resolve the proper balance between desired industrial progress and adequate health and safety standards". \textit{id.} at 1153-54.

\textsuperscript{163} See note 65 and accompanying text \textit{supra}.

\textsuperscript{164} See note 108 and text accompanying notes 108-11 \textit{supra}.

\textsuperscript{165} CAL. PUB. RES. CODE § 25524.3 (West Supp. 1978). See note 13 \textit{supra}.

\textsuperscript{166} The study was to be completed "within one year from January 1, 1977." CAL. PUB. RES. CODE § 25524.3(a) (West Supp. 1978); see note 13 \textit{supra}.

\textsuperscript{167} The section (and apparently any regulations adopted pursuant thereto) is inapplicable to any nuclear power plant site and facility for which notice of intent to apply for certification is filed with, and accepted by, the Commission prior to January 1, 1980, "[n]otwithstanding any provisions of this section to the contrary." \textit{Id.}, § 25524.3 (West Supp. 1978); see note 12 \textit{supra}. Furthermore, the Energy Commission has recently decided not to require undergrounding or berm-containment at this time because of uncertainty over costs, and the existence of alternatives. \textit{See Decision: Underground Siting, supra} note 13, at 4. Thus, although the legislature may legitimately choose to require that nuclear power plants be undergrounded or berm-contained either on review of the Energy Commission's
Each technique leaves untouched the level of radioactive discharge from the power plant itself but undoubtedly diminishes the rate of radioactive leakage into the area beyond the reactor's rock or soil surroundings, both during periods of normal operation and in the event of a core-melt accident. In fact, the rate of percolation through rock and soil has been considered negligible.\textsuperscript{168} This circumstance would not necessarily have required a finding of federal preemption even absent Clean Air Act section 122.\textsuperscript{169} That section, however, now expressly authorizes state regulation diminishing the rate of radioactive leakage to the atmosphere. A state has not only the right to adopt standards or limitations respecting radioactive air emissions, but also the right to enforce "any requirement respecting control or abatement of air pollution."\textsuperscript{170}

While the issue plainly might have been a close one in the absence of section 122 if the only interest served by berming or undergrounding had been the reduction of radiation leakage, other state interests are in fact served by these procedures.\textsuperscript{171}

\textsuperscript{168} Atomic Energy Commission, Health Physics Division, \textit{Report of the Clinch Valley Study}, 61 n.* (Oak Ridge National Laboratory, 1973) [hereinafter cited as \textit{Clinch Valley Study}]. The California Energy Commission \textit{Staff Report: Underground Siting},\textsuperscript{supra} note 13, also found that "diffusion to the atmosphere of radioisotopes other than noble gases was insignificant for the mined-cavern concepts," and greatly reduced for berm concepts. \textit{Id.} at 7-10. (In comparison, with respect to groundwater contamination, radionuclide travel times may "range from 7 years to 4 million years per mile" depending on site condition. \textit{Id.} at 7-13.)

\textsuperscript{169} See text accompanying notes 115-17 \textit{supra}. See also text accompanying notes 82-101 \textit{supra}.

\textsuperscript{170} Clean Air Act § 116, 42 U.S.C. § 7416 (West Supp. 1978); see text accompanying notes 102-05 \textit{supra}.

\textsuperscript{171} Subsections (b) and (c) of section 25524.3 refer to the necessity, effectiveness, and economic feasibility of these procedures to meet other requirements of the Warren Alquist Act (see note 5 \textit{supra}) "relating to enhancing the public health and safety at a site." \textit{Cal. Pub. Res. Code} § 25524.3(b), (c) (West Supp. 1978). However, radiation hazards resulting from the operation of a nuclear power plant are not the only concerns related to the public health and safety. First, one must distinguish between state regulation of radiation hazards ordinarily present, such as that before the court in \textit{Northern States} (now expressly permitted by section 122), and state regulation for the purpose of minimizing the variety of adverse consequences that would result from an extreme reactor accident. Offsite health effects in case of a core-melt accident are negligible for an underground facility. \textit{Staff Report: Underground Siting, supra} note 13, at 7-13. Second, the Energy Commission \textit{Staff Report's}
Berm-containment and undergrounding are potential means of increasing public utility efficiency. In discussing berm-containment the AEC has identified several significant economies which this technique makes possible:

Exterior design could be simplified to the extreme. First cost savings of exterior architectural requirements would be considerable and the associated construction costs and delay effects would be eliminated. If we could assume that the restricted or exclusion area would be considerably reduced by the nature of the construction for this nuclear plant, the total land purchase requirements should be much less than for conventional plants. The possibility of siting closer to the load center may be increased by the inherent safety features of the underground siting. In this case, transmission line length would be decreased with a corresponding decrease in the land acquisition cost.\(^\text{172}\)

The Caltech Environmental Quality Laboratory (EQL) has similarly cited several cost advantages of underground reactor containment.\(^\text{173}\) After noting the benefits of siting closer to load centers (\textit{e.g.}, both reduced transmission costs and reduced cost of capacity required to compensate for transmission line losses),\(^\text{174}\) EQL observed that “[t]he cost of weather protection for outdoor turbine generators used for surface . . . plants would also be avoided. Perhaps the most significant cost savings would be that associated with the reduced impact of weather during the construction of the plant.”\(^\text{175}\)

A California Energy Commission staff report, however, estimates the costs of a berm-contained plant to be at least fourteen percent greater than for a reference surface facility, and mined-cavern siting to increase costs over surface construction by about twenty-five percent.\(^\text{176}\) Unfortunately, two major categories of costs—land and transmission costs—were not included in the estimates.\(^\text{177}\) The rising cost of land

admittedly “incomplete” list of possible advantages of subsurface siting clearly embraces advantages not related to radiation hazards:

- Enhanced seismic performance;
- Improved accident mitigation capability;
- Possibility of urban siting;
- Inherent protection from sabotage;
- Psychological benefits—the so-called “out-of-sight, out-of-mind” syndrome;
- Improved decommissioning;
- War protection; and
- Isolation from external hazards.

\(^\text{172}\) \textit{Clinch Valley Study, supra} note 168, at 61. The AEC also acknowledged the beneficial aesthetic effects of berm-containment. \textit{Id.}

\(^\text{173}\) \textit{Environmental Quality Laboratory Report \#6, Underground Nuclear Powerplant Siting} 2-5 (1972).

\(^\text{174}\) \textit{Id.}

\(^\text{175}\) \textit{Id.}


\(^\text{177}\) \textit{Id.} at 6-5. This is especially unfortunate since one of the three reasons the staff
acquisition and the loss of power inherent in transmission over long distances may tip the cost scales in favor of subsurface siting.

Investment and operation costs aside, berm-containment and undergrounding may be preferable to surface siting because of the power plants' "immunity from tornadoes, hurricanes, plane crashes, and effects of conventional weapons."178 Also, "[t]he anticipated level of earthquake-induced ground shaking for an underground plant is less than for a surface facility for a given earthquake at comparable sites."179

Berm-containment and undergrounding are recognized means of minimizing not only adverse health effects, but also socio-economic costs which could follow from an extreme nuclear reactor accident.180 "Undergrounding seeks to limit accident costs by making it unnecessary to evacuate and relocate populations; eliminating immediate health effects with associated hospitalization; and avoiding the need for interdiction."181 Interdiction, referring to the hazard level at which preventive action is taken, results in the inability to use productive land—including farmland—and is a major factor in overall accident-induced costs.182

The California Energy Commission staff report found that no evacuation, relocation, or interdiction would be necessary for the underground concepts.183 The AEC has also recognized that with underground siting, the management of a catastrophic meltdown is greatly simplified.184

The reports from the AEC, the EQL, and the California Energy Commission demonstrate substantial purposes for which states might require either undergrounding or berm-containment other than to protect against radiation hazards,185 and certainly other than to control radioactive plant discharges. Such a requirement would not conflict with congressional intent to provide for uniform reactor design and op-

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180. The Staff Report considers a so-called core-melt or Class 9 accident, which may occur if safety systems fail to function as intended, to be an extreme reactor accident. *Staff Report: Underground Siting*, supra note 13, at v, 3-1.
181. *Id.* at 7-8.
182. *Id.* at 7-5, 7-7.
183. *Id.* at 7-12.
185. As indicated elsewhere (text accompanying notes 82-101 supra), the state may in fact be constitutionally empowered to regulate siting techniques for purposes of protection from radiation hazards even absent Clean Air Act section 122.
erating standards in order to assure safety.\textsuperscript{186} Nor can it be said that mandatory berm-containment or undergrounding would "unnecessarily stultify the industrial developmental use of atomic energy,"\textsuperscript{187} whatever the degree to which Congress wished to promote nuclear power.\textsuperscript{188} First, there is no basis to assume that compliance with either of these requirements would be technically or economically infeasible. More importantly, to the extent these requirements reflect nonradiation purposes, any resulting inhibition of nuclear development would be justifiable.\textsuperscript{189}


The placement of California's nuclear provisions within a comprehensive administrative scheme to achieve such purposes as ensuring a reliable supply of electrical energy, conserving energy resources, and assuring attainment of statewide environmental, public safety, and land use goals,\textsuperscript{190} is a further indication of California's pursuit of legitimate interests in enacting these provisions. The Warren-Alquist Act establishes the procedures to be followed in siting non-nuclear as well as nuclear thermal power plants and sets forth the criteria which the California Energy Commission must consider in determining whether a particular site and related facility proposal is acceptable.\textsuperscript{191} In making this determination, the Commission must consider economic, financial, rate, system reliability, and service implications of the proposed facilities and must solicit comments on these matters from the State Public Utilities Commission.\textsuperscript{192} The Energy Commission must, in reviewing factors related to safety and reliability, consider plans for the transport, handling, and storage of wastes and fuels, proposed methods to prevent theft of nuclear fuels, and special design features in anticipation of earthquakes and other potential hazards for all types of thermal

\textsuperscript{186} See text accompanying note 84 supra. Insofar as state regulation of nonradiological matters affects the construction and operation of nuclear power plants, such regulation would not have been preempted under the Atomic Energy Act of 1954 even before the enactment of section 122 of the Clean Air Act, because the terms "construction" and "operation" assume a special meaning within the context of the 1954 Act and NRC's regulations. Marshall, \textit{v. Consumers Power Co.}, 237 N.W.2d at 277-78 (1975). Furthermore, safety standards for the technical design and construction of the reactor itself are quite different from a requirement that a reactor be covered with earth or constructed in a mined cavern. \textit{See}, \textit{id.}; \textit{cf.} Huron Portland Cement Co. \textit{v. Detroit}, 362 U.S. 440 (1960) (municipal anti-pollution statute found not to conflict with federal ship safety statutes even though structural modification of the vessel was required to bring it into compliance with the anti-pollution statute).

\textsuperscript{187} \textit{Northern States}, 447 F.2d at 1154 (emphasis added).

\textsuperscript{188} See text accompanying notes 94-101 supra.

\textsuperscript{189} See text accompanying notes 161-64 supra.

\textsuperscript{190} \textbf{CAL. PuB. RES. CODE} §§ 25001, 25005, 25007 (West 1977); \textit{see} note 5 supra.

\textsuperscript{191} \textbf{CAL. PuB. RES. CODE} § 25514 (West Supp. 1978), § 25516 (West 1977).

\textsuperscript{192} \textit{Id.}, § 25506.5 (West 1977), § 25519(i) (West Supp. 1978).
powerplants.\textsuperscript{193} Only those sites and related facilities that have been found to be acceptable at the "notice of intent" stage will be considered for certification by the Energy Commission.\textsuperscript{194} Furthermore, while deciding whether to grant an application for certification, the Energy Commission must comply with environmental impact reporting (EIR) procedures pursuant to the California Environmental Quality Act\textsuperscript{195} (CEQA), the state's analogue to the National Environmental Policy Act\textsuperscript{196} (NEPA).\textsuperscript{197} CEQA declares:

That it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the environmental effects of such projects, . . . \textsuperscript{198}

The Energy Commission must analyze such alternatives.\textsuperscript{199}

Taken together, these provisions demonstrate California's intent to assure that a site and related facility proposal is not an unacceptable electricity supply option from the standpoint of a variety of factors, including resource conservation, health and safety risks, utility rate effects, land use implications, and environmental degradation.\textsuperscript{200} California's special nuclear provisions aside, the Energy Commission could not close its eyes to the economic as well as long-range environmental questions posed by nuclear power, whether or not such questions arise as a result of radiation hazards, in determining whether a particular nuclear facility proposal is acceptable.\textsuperscript{201} To hold otherwise would be to announce to the utilities that California's authority to disapprove a nuclear facility proposal on the basis of criteria applicable to all other types of facility proposals is severely restricted.\textsuperscript{202} California's citizens

\textsuperscript{193} Id., § 25511 (West 1977).
\textsuperscript{194} Id. § 25519(a) (West Supp. 1978). See note 11 supra.
\textsuperscript{195} CAL. PUB. RES. CODE §§ 21000-21176 (West 1977 and West Supp. 1978).
\textsuperscript{197} CAL. PUB. RES. CODE § 25519(c) (West Supp. 1978).
\textsuperscript{198} Id. § 21002 (West 1977).
\textsuperscript{199} Id. § 21000(d).
\textsuperscript{200} If the Energy Commission finds that additional electric generating capacity is needed to accommodate its demand forecast made pursuant to section 25309(b) of the California Public Resources Code, but fails to find any proposed site and related facility acceptable, it may designate (at the request and expense of the utility) a feasible site and related facility for providing the needed power. Id. § 25516. While a recent amendment to the Warren-Alquist Act makes clear that the Energy Commission may not specify a comprehensive "supply plan" for any utility, id. § 25323, it also makes clear that a decision to reject, for the reasons listed in the text above, a notice of intent for or application for certification of any utility proposal will not be considered to mandate a supply plan as prohibited by Section 25323. Id. § 25531(e). Senate Bill 1859, 1978 California Legislative Session, enacted 1978 Cal. Stats., ch. 1013, §§ 6, 22.
\textsuperscript{201} See text accompanying notes 115-17 supra.
\textsuperscript{202} The California Attorney General seems to have implied just such a result. In discussing the meaning of AEA § 274(k), 42 U.S.C. § 2021(k) (1976), he suggested that California retains the ability "to make the initial determination as to the need for electric power (irrespective of the manner of generation)," and may otherwise regulate electric power only
and ratepayers may properly insist that their state government consider all relevant factors necessary to enable the state to maintain a reliable and inexpensive supply of electricity and avoid irreconcilable conflicts with sound principles of ecology.

The special nuclear provisions simply restrict the Energy Commission's discretion in certifying nuclear power plant facility proposals by having the Commission focus in a generic proceeding on three issues peculiar to such proposals and by requiring that minimum findings be made before any such facilities may be approved. These requirements relate to the generation of electricity and are thus expressly permitted by the Atomic Energy Act of 1954. Moreover, by waiting for a federally approved solution to the waste and reprocessing problems, California, in sections 25524.1 and 25524.2, creates no conflict with any applicable provision of federal law, but instead appropriately complements the federal scheme.

Nor do the state's nuclear provisions intrude upon any field occupied by the federal government. It is true that the formulation of energy policy is becoming a national responsibility. The federal government regulates gas and oil prices, negotiates with foreign countries regarding oil importation, and promotes the development of various energy sources. The states, on the other hand, have traditionally regulated the operations of public utilities. They have a strong "local" interest in the siting of industrial facilities and a traditional concern for the handling of wastes produced by any facility. Their interest in maintaining public tranquility is paramount. Federal occupation of a field which is so broad as to oust state regulation that embraces all these state interests could not be easily inferred. It bears repeating, that in determining whether the state's nuclear provisions are preempted, a court must be cognizant of the "sensitive interrelationship between statutes adopted by the separate, yet coordinate, federal and state sovereignties," and "the proper approach is to reconcile the operation of both statutory schemes with one another rather than holding one completely ousted."
VI

COMPLETE REJECTION OF NUCLEAR POWER

Since the state's nuclear provisions may result in an indefinite exclusion of nuclear power plants from California, it may be argued that the state is interfering with activity that Congress set out to promote through the Atomic Energy Act. Congress, however, has neither made a judgment nor enacted any requirement that the nation as a whole must "go nuclear." On the contrary, by separating promotional from regulatory activities in the nuclear field and by recently permitting states to subject nuclear power plants to state health regulations no less stringent than those applicable to other energy sources, Congress has clearly indicated its intent to provide the states with a nuclear option, not a nuclear mandate.

Should a state exercise its power to reject this nuclear option notwithstanding a federal policy to make the option as attractive as possible, a court faced with a preemption challenge must remember that Congress remains free to decide that vital national interests require overriding the state's choice and then to use unambiguous statutory language to that effect. A congressional decision to override the state's rejection of nuclear power might be justifiable if it were reasonably found that the state's resources or territory had to be harnessed to meet the energy or security needs of some other part of the nation. Plainly a court should not assume such a need where the record shows no such determination by Congress.

On the other hand, if Congress were to decide, notwithstanding a contrary judgment by state authorities, that more nuclear power plants in California are needed only to provide more energy for California itself, a substantial question of constitutional power would arise. When

211. See note 42 and accompanying text supra. But see discussion of Exxon v. Governor of Md. in note 161 supra.
212. See note 142 supra.
213. See text accompanying notes 94-101 supra.
214. See text accompanying note 102 supra. Indeed, under section 122 it is conceivable that a state could validly set emission levels so low that no nuclear power plant could comply.
215. See text accompanying notes 53-57 supra.
216. The court in Northern States saw the existence of an interstate transmission system as support for the conclusion that Congress intended to foster the development of atomic energy. 447 F.2d at 1153. The AEA, however, indicates that Congress based its finding that facilities utilizing nuclear materials are in interstate commerce on "[t]he necessity for protection against possible interstate damage occurring from the operation of" such facilities, 42 U.S.C. § 2012(f) (1976), and declared that federal regulation "is necessary in the national interest to assure the common defense and security and to protect the health and safety of the public." 42 U.S.C. § 2012(e) (1976). Congress may have intended to foster the development of atomic energy, but there is no clear indication that it found nuclear power plants necessary to meet the energy needs of the nation as a whole.
217. See text accompanying notes 86-91 supra.
a state decides how best to meet the energy needs of its citizens at reasonable cost and without undue strain on its systems for maintaining order, the state may well be thought to exercise one of those "integral governmental functions" that the Supreme Court in 1976 held constitutionally immune from congressional legislation absent a showing of compelling national necessity.\textsuperscript{218} If, as the Court held in \textit{National League of Cities v. Usery}, a congressional command that the states pay their public health and recreation employees a minimum wage must be struck down as a forbidden attempt to "devour the essentials of state sovereignty,"\textsuperscript{219} then what is one to say of a congressional command that states invest their resources in nuclear energy rather than rely on a combination of fossil fuels, solar power, geothermal power, and other energy sources? A much more frontal challenge to state autonomy would be difficult to imagine.

In any event, constitutional authority to force a state into such a nuclear straitjacket does not follow from congressional power to displace state with federal regulations for the design and operation of individual nuclear reactors. As the Court tellingly noted in \textit{National League of Cities}, "[i]t is one thing to recognize the authority of Congress to enact laws regulating individual businesses necessarily subject to the dual sovereignty of the government of the Nation and of the state in which they reside. It is quite another to uphold a similar exercise of congressional authority directed not to private citizens, but to the States as States."\textsuperscript{220} If Congress requires General Electric to obey design requirements of the Nuclear Regulatory Commission rather than those of the California Legislature for a federally licensed facility, it is not forcing California to submit to a grand nuclear strategy. If Congress requires California to open its gates to nuclear reactors, however, it is exercising the far more delicate power that, under \textit{National League of Cities}, appears to call for extraordinary justification, such as a showing of "an extremely serious problem which endanger[s] the well-being of all the component parts of our federal system and which only collective action by the National Government might forestall."\textsuperscript{221} Given the extraordinary difficulty of justifying a nuclear mandate for the state's own sake, it should not be surprising that Congress has not undertaken to exercise such a federal power.

In the absence of the clearest statement by Congress,\textsuperscript{222} a court

\textsuperscript{218} National League of Cities v. Usery, 426 U.S. 833, 855 (1976).
\textsuperscript{219} \textit{Id.} (quoting from Mr. Justice Douglas, dissenting in \textit{Maryland v. Wirtz}, 392 U.S. 183, 205 (1968)).
\textsuperscript{220} \textit{National League of Cities}, 426 U.S. at 845 (1976).
should not precipitate a major constitutional conflict by construing the complex network of federal laws and regulations in the nuclear field in such a way as to deprive California, or any state, of the power to exclude nuclear reactors on the basis that they entail more costs than benefits for the state's citizens. It follows that even if California's nuclear provisions were to result in the exclusion of nuclear reactors—a wholly speculative possibility—they should not, solely for that reason, be deemed preempted by federal law.

VII

CONCLUSION

California's nuclear fission thermal power plant siting legislation presents important questions concerning the scope of Congress' intent to preempt the states from regulating in the field of nuclear activities. A court faced with the task of resolving such questions must be sensitive to the legitimate state interests embodied in, and the sovereign state functions discharged by, the California provisions. If doubts about those provisions are properly resolved in favor of their validity, then the California nuclear provisions will not be found to violate the United States Constitution.

(a) No nuclear fission thermal powerplant requiring the reprocessing of fuel rods, including any to which the provisions of this chapter do not otherwise apply, excepting any having vested right as defined in this section, shall be permitted land use in the state or, where applicable, certified by the commission until both of the following conditions are met:

(1) The commission finds that the United States through its authorized agency has identified and approved, and there exists a technology for the construction and operation of, nuclear fuel rod reprocessing plants.

(2) The commission has reported its findings and the reasons therefor pursuant to paragraph (1) to the Legislature. Such reports of findings shall be assigned to appropriate policy committees for review. The commission may proceed to certify nuclear fission thermal powerplants 100 legislative days after reporting its findings unless within those 100 legislative days either house of the Legislature adopts by a majority vote of its members a resolution disaffirming the findings of the commission made pursuant to paragraph (1).

A resolution of disaffirmance shall set forth the reasons for the action and shall provide to the extent possible, guidance to the commission as to an appropriate method of bringing the commission's findings into conformance with paragraph (1).

If a disaffirming resolution is adopted, the commission shall reexamine its original findings consistent with matters raised in the resolution. On conclusion of its reexamination, the commission shall reduce its findings to writing with the reasons therefor and shall transmit them to the Legislature.

If the findings are that the conditions of paragraph (1) have been met, the commission may proceed to certify nuclear fission thermal powerplants 100 legislative days after reporting its findings to the Legislature unless within the 100 legislative days both houses of the Legislature act by statute to declare the findings null and void and takes appropriate action.

To allow sufficient time for the Legislature to act, the reports of findings of the commission shall be submitted to the Legislature at least six calendar months prior to the adjournment of the Legislature sine die.

(b) The commission shall further find on a case-by-case basis that facilities with adequate capacity to reprocess nuclear fuel rods from a certified nuclear facility or to store such fuel if such storage is approved by an authorized agency of the United States are in actual operation or will be in operation at the time such nuclear facility requires such reprocessing or storage; provided, however, that such stor-
age of fuel is in an offsite location to the extent necessary to provide continuous onsite full core reserve storage capacity.

(c) The commission shall continue to receive and process notices of intention and applications for certification pursuant to this, [sic] division, but shall not issue a decision pursuant to Section 25523 granting a certificate until the requirements of this section have been met. All other permits, licenses, approvals, or authorizations for the entry or use of the land, including orders of court, which may be required may be processed and granted by the governmental entity concerned but construction work to install permanent equipment or structures shall not commence until the requirements of this section have been met.

For purposes of this section, the vested right to construct a nuclear thermal powerplant shall exist if, prior to the date on which this section is chaptered, an electric utility has performed substantial construction on such powerplant and has incurred substantial expense for construction and for necessary materials for such powerplant, including, but not limited to, the following sites and facilities, with the associated estimated generating capacities:

(1) As designated in the report of the Pacific Gas and Electric Company submitted to the Public Utilities Commission on December 23, 1966, pursuant to Section 1001 of the Public Utilities Code, one nuclear thermal powerplant, having a generating capacity of 1,060 megawatts, commonly known as Diablo Canyon Unit 1, to be located in San Luis Obispo County.

(2) As designated in the report of the Pacific Gas and Electric Company submitted to the Public Utilities Commission on February 16, 1968, pursuant to Section 1001 of the Public Utilities Code, one nuclear thermal powerplant, having a generating capacity of 1,060 megawatts, commonly known as Diablo Canyon Unit 2, to be located in San Luis Obispo County.

(3) As designated in the report of the Southern California Edison Company and the San Diego Gas and Electric Company to the Public Utilities Commission on July 16, 1970, pursuant to Section 1001 of the Public Utilities Code, two nuclear thermal powerplants, having a generating capacity of 1,100 megawatts per unit, commonly known as San Onofre Unit 2 and San Onofre Unit 3, to be located in San Diego County.


No nuclear fission thermal powerplant, including any to which the provisions of this chapter do not otherwise apply, but excepting those exempted herein, shall be permitted land use in the state, or where applicable, be certified by the commission until both conditions (a) and (b) have been met:

(a) The commission finds that there has been developed and that the United States through its authorized agency has approved and there
exists a demonstrated technology or means for the disposal of high-level nuclear waste.

(b) The commission has reported its findings and the reasons thereof pursuant to paragraph (a) to the Legislature. Such reports of findings shall be assigned to appropriate policy committees for review. The commission may proceed to certify nuclear fission thermal powerplants 100 legislative days after reporting its findings unless within those 100 legislative days either house of the Legislature adopts by a majority vote of its members a resolution disaffirming the findings of the commission made pursuant to paragraph (a).

A resolution of disaffirmance shall set forth the reasons for the action and shall provide to the extent possible, guidance to the commission as to an appropriate method of bringing the commission's findings into conformance with paragraph (a).

If a disaffirming resolution is adopted, the commission shall reexamine its original findings consistent with matters raised in the resolution. On conclusion of its reexamination, the commission shall reduce its findings to writing with the reasons therefor and shall transmit them to the Legislature.

If the findings are that the conditions of paragraph (a) have been met, the commission may proceed to certify nuclear fission thermal powerplants 100 legislative days after reporting its findings to the Legislature unless within those 100 legislative days both houses of the Legislature act by statute to declare the findings null and void and take appropriate action.

To allow sufficient time for the Legislature to act, the reports of findings of the commission shall be submitted to the Legislature at least six calendar months prior to the adjournment of the Legislature sine die.

(c) As used in this section, "technology or means for the disposal of high-level nuclear waste" means a method for the permanent and terminal disposition of high-level nuclear waste. It shall not necessarily require that facilities for the application of such technology and/or means be available at the time the commission makes it findings. Such disposition shall not necessarily preclude the possibility of an approved process for retrieval of such waste.

(d) The commission shall continue to receive and process notices of intention and applications for certification pursuant to this division but shall not issue a decision pursuant to Section 25523 granting a certificate until the requirements of this section have been met. All other permits, licenses, approvals or authorizations for the entry or use of the land, including orders of court, which may be required may be processed and granted by the governmental entity concerned but construction work to install permanent equipment or structures shall not commence until the requirements of this section have been met.

(e) Any nuclear fission powerplant is exempted from the provisions of this section if prior to the date on which this section is chaptered an electric utility has performed substantial construction on such
powerplant and has incurred substantial expense for construction and for necessary materials for such powerplant, including, but not limited to, the following sites and facilities, with the associated estimated generating capacities:

1. As designated in the report of the Pacific Gas and Electric Company submitted to the Public Utilities Commission on December 23, 1966, pursuant to Section 1001 of the Public Utilities Code, one nuclear thermal powerplant, having a generating capacity of 1,060 megawatts, commonly known as Diablo Canyon Unit 1, to be located in San Luis Obispo County.

2. As designated in the report of the Pacific Gas and Electric Company submitted to the Public Utilities Commission on February 16, 1968, pursuant to Section 1001 of the Public Utilities Code, one nuclear thermal powerplant, having a generating capacity of 1,060 megawatts, commonly known as Diablo Canyon Unit 2, to be located in San Luis Obispo County.

3. As designated in the report of the Southern California Edison Company and the San Diego Gas and Electric Company to the Public Utilities Commission on July 16, 1970, pursuant to Section 1001 of the Public Utilities Code, two nuclear thermal powerplants, having a generating capacity of 1,100 megawatts per unit, commonly known as San Onofre Unit 2 and San Onofre Unit 3, to be located in San Diego County.

Section 25524.3: The Undergrounding and Berm Containment Provision CAL. PUB. RES. CODE (West Supp. 1978).

No nuclear fission thermal powerplant, including any to which the provisions of this chapter do not otherwise apply, but excepting any having vested rights as defined in this section, shall be permitted land use in the state, or, where applicable, be certified by the commission until the following conditions have been met:

a. The commission has undertaken and completed a study of the necessity for, and effectiveness and economic feasibility of, undergrounding and berm containment of nuclear reactors, and, upon completion of the study, the commission, after public hearings, has determined whether to require by rules and regulations that unclear [sic] reactors be either undergrounded or berm contained. The commission shall complete such study and submit it to the Legislature, with conclusions and recommendations, within one year from January 1, 1977. The commission shall also submit to the Legislature, along with the study, a report indicating any staff positions and duties which will be necessary, beyond the study completion date, in order to implement the provisions of this section. Any staff position created by the commission for the purpose of implementing the provisions of this section shall be eliminated by the end of the 1977-78 fiscal years.

b. In the event that the commission determines that undergrounding and berm containment are necessary, effective, or economi-
cally feasible to meet the requirements of Sections 25511 and 25520, relating to enhancing the public health and safety at a site and related facility, rules and regulations implementing such findings shall be sus-
pended for a period of one year so as to provide the Legislature with the necessary time to evaluate and verify the results of the study.

(c) In the event that the commission determines that under-
grounding and berm containment are not necessary, effective, or eco-
nomically feasible to meet the requirements of Sections 25511 and
25520, relating to enhancing the public health and safety at a site, no nuclear fission thermal powerplant shall be approved for one year thereafter, so as to provide the Legislature with the necessary time to evaluate the study for possible statutory implementation.

The commission shall continue to receive and process notices of intention and applications for certification pursuant to this division, but shall not issue a decision pursuant to Section 25523 granting a certifi-
cate until the requirements of this section have been met. All other permits, licenses, approvals or authorizations for the entry or use of the land, including orders of court, which may be required may be processed and granted by the governmental entity concerned but construc-
tion work to install permanent equipment or structures shall not commence until the requirements of this section have been met.

For purposes of this section, the vested right to construct a nuclear thermal powerplant shall exist if, prior to January 1, 1977, an electric utility has performed substantial expense for construction and for nec-
essary materials for such powerplant, including, but not limited to, the following sites and facilities, with the associated estimated generating capacities:

(1) As designated in the report of the Pacific Gas and Electric Company submitted to the Public Utilities Commission on December 23, 1966 pursuant to Section 1001 of the Public Utilities Code, one nuclear thermal powerplant, having a generating capacity of 1,060 megawatts, commonly known as Diablo Canyon Unit 1, to be located in San Luis Obispo County.

(2) As designated in the report of the Pacific Gas and Electric Company submitted to the Public Utilities Commission on February 16, 1968, pursuant to Section 1001 of the Public Utilities Code, one nuclear thermal powerplant, having a generating capacity of 1,060 megawatts, commonly known as Diablo Canyon Unit 2, to be located in San Luis Obispo County.

(3) As designated in the report of the Southern California Edison Company and the San Diego Gas and Electric Company to the Public Utilities Commission on July 16, 1970, pursuant to Section 1001 of the Public Utilities Code, two nuclear thermal powerplants, having a generating capacity of 1,100 megawatts per unit, commonly known as San Onofre Unit 2 and San Onofre Unit 3, to be located in San Diego County.

Notwithstanding any provisions of this section to the contrary, the provisions of this section shall not apply to any nuclear fission thermal
powerplant site and related facility for which a notice of intent has been filed pursuant to Section 25502 with, and accepted by, the commission within three years of January 1, 1977.
GRAND CENTRAL TERMINAL

Midtown Manhattan zoning provisions allow tall buildings with floor area ratios many times that of Grand Central Terminal. The Terminal's designation as a New York City landmark restricted Penn Central Railroad's exploitation of these valuable "air..."