

ENVIRONMENTAL REGULATION, ENERGY, AND MARKET ENTRY

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INTRODUCTION

The stated purpose of this symposium is to explore “the extent to which environmental regulations currently act as a barrier to entry in energy markets and whether the current regime strikes the right balance between environmental protection and efficiency.”¹ I will discuss three contexts in which I believe that existing methods of environmental regulation conflict with energy policy goals: gasoline production, importation of liquefied natural gas (“LNG”), and electricity transmission. Before I begin to discuss the conflicts I see in each of those three areas, however, I need to make explicit the criteria I am applying to identify conflicts between environmental regulation and energy goals.

I am using the economist’s concept of allocative efficiency as my primary normative criterion for evaluating the effects of environmental regulation on energy policy goals. As Fred Kahn famously said: “The central policy prescription of microeconomics is the equation of price and marginal cost.”² Many corollaries follow from that central principle, e.g., the price of a good or service should include its full marginal social cost, including any costs it imposes on the environment.³ Thus, for instance, I see no conflict between pursuit of energy policy goals and environmental regulations that require energy market participants to make cost-effective reductions in the costs they impose on the environment and to internalize the residual costs they impose on the environment. The environmental regulations I identify

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1. Letter from Allison H. Ridder, Special Projects Editor, Duke Environmental Law and Policy Forum, to Richard J. Pierce, Jr. (June 17, 2004) (on file with Duke Environmental Law and Policy Forum).

2. ALFRED E. KAHN, *THE ECONOMICS OF REGULATION* 65 (1970).

3. *Id.* at 193-195; RICHARD L. REVESZ & ROBERT N. STAVINS, *ENVIRONMENTAL LAW AND POLICY*, at 4-6 (Harvard University, John F. Kennedy School of Government Faculty Research Working Paper RWP 04-023, May 2004).

as creating conflicts with energy policy are regulations that interfere with pursuit of energy goals with little or no resulting environmental benefit. These conflicts result from mismatches between regulatory powers wielded by different institutions. In particular, state and local regulatory agencies often act in ways that conflict with pursuit of national energy policy goals.

I. GASOLINE PRODUCTION AND DISTRIBUTION

Gasoline-powered automobile engines cause many billions of dollars a year in environmental damage from air pollution.⁴ Beginning in 1970, the U.S. responded to this problem by imposing increasingly stringent and increasingly costly air quality rules on both automobile manufacturers and suppliers of gasoline.⁵ Generally, I do not see a conflict between those environmental regulations and pursuit of our energy policy goals. In fact, I do not think we have gone far enough in our efforts to require automobile users to internalize the costs they impose on the environment. The residual environmental damage caused by the use of gasoline-powered engines in automobiles could justify imposition of a substantial additional tax on gasoline.⁶ I am increasingly concerned, however, about the inefficient and unnecessarily costly manner in which we are regulating gasoline, particularly as it interacts with the environmental constraints on expansion of the capacity of the refineries that produce gasoline.

Gasoline prices have become increasingly volatile since 2000.⁷ Moreover, it is now common for the price of gasoline to vary significantly among states and even among localities within the same state.⁸ Studies of these phenomena have identified two systemic sources of the increased volatility and variability—proliferation of gasoline types

4. ZYGMUNT PLATER ET AL., ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, AND SOCIETY 744 – 753 (3d ed. 2004).

5. *Id.*

6. *See, e.g.*, ROBERT N. STAVINS & BRADLEY W. WHITEHEAD, THE GREENING OF AMERICA'S TAXES: POLLUTION CHARGES AND ENVIRONMENTAL PROTECTION (Progressive Pol'y Inst. Rept. No. 13, Oct. 17, 1991).

7. ENERGY INFORMATION ADMINISTRATION, GASOLINE TYPE PROLIFERATION AND PRICE VOLATILITY 4 – 7 (Sep. 2002).

8. *Id.* at 5; FEDERAL TRADE COMMISSION, MIDWEST GASOLINE PRICE INVESTIGATION 5 – 6 (Mar. 29, 2001).

and increasingly inadequate domestic refining capacity.⁹ Both of those phenomena, in turn, are rooted in environmental regulation. Unless we change some combination of our environmental regulations applicable to refineries and/or our environmental regulations applicable to gasoline, we can expect the U.S. gasoline market to perform in an increasingly unacceptable manner.

Until 1990, there were three types of gasoline sold in the U.S.—regular, midgrade, and premium.¹⁰ The gasoline market was intensely competitive and performed well. Each type of gasoline was produced in many refineries owned by many different firms. In addition, each type of gasoline was readily available from numerous foreign refineries. Local or regional shortages or price spikes were rare and short lived. If a refinery serving an area shut down unexpectedly or the level of gasoline consumption in an area was unusually high, supplies from other refineries quickly moved into the area to eliminate any temporary imbalance between supply and demand. No refiner could exercise market power unilaterally, and the large number of refiners made collusion virtually impossible.

Environmental regulations on gasoline imposed by states are changing the basic characteristics of the gasoline market in ways that have already increased price volatility and regional variability, and that have the potential to increase significantly the risk of both unilateral and collusive exercises of market power by refiners. As of 2002, there were twenty-one types of gasoline sold in the United States, eighteen of which were mandated by states for use in some localities.¹¹ This has already changed the characteristics of the gasoline market in unfortunate ways. Many types of gasoline are now produced by only one or a few refineries.¹² Many of the gasoline types can be produced only if a refinery makes a large capital investment, the value of which is limited to the production of that type of gasoline.¹³ Only a few refineries are willing to make the investment required to produce many of the new types of gasoline.¹⁴ No refinery

9. FEDERAL TRADE COMMISSION, *supra* note 8, at 13-22; ENERGY INFORMATION ADMINISTRATION, *supra* note 7, at 4; Statement of John Cook, Director Petroleum Division, Energy Information Administration, Before the Subcommittee on Energy and Air Quality, Committee on Energy and Commerce, U.S. House of Representatives 3–5 (March 30, 2001).

10. ENERGY INFORMATION ADMINISTRATION, *supra* note 7, at 2.

11. *Id.* at 3.

12. *Id.* at 5–6.

13. *Id.* at 6.

14. *Id.* at 6.

can produce economically anywhere near all twenty one types of gasoline that are now mandated for use in the U.S. The proliferation of gasoline types also has disrupted the efficient functioning of the gasoline distribution system.¹⁵ Each gasoline type must be separately batch-fed through product pipelines to avoid commingling.

The Energy Information Administration (“EIA”) has summarized the results of our increasingly fragmented gasoline market.¹⁶ With refineries typically operating at or near capacity, a supply-demand imbalance can occur at any time for a variety of reasons—an unexpected refinery or pipeline shutdown or an unexpected increase in demand. When this happens in one of the localities or regions that uses one of the many unique gasoline types, the locality or region cannot obtain supplies from neighboring areas or from other refineries because the neighboring areas use different types of gasoline and other refineries lack the capability to produce the type of gasoline that is in short supply.¹⁷ In most cases, the area that experiences the shortage also cannot turn to imports because few foreign refineries are willing to make the capitol investment necessary to produce any of the many unique types of gasoline mandated for use in various parts of the U.S.¹⁸

There are indications that the balkanization of the U.S. gasoline market is also beginning to have adverse effects on the competitiveness of the market. The Federal Trade Commission (“FTC”) has conducted numerous investigations of the U.S. gasoline market and has a program through which it systematically monitors the performance of that market.¹⁹ Until recently, FTC had never found any evidence of collusion or of unilateral exercises of market power by any participant in that market. Those results are not surprising, since the structural characteristics of the market—a large number of firms competing in a national market—rendered either collusion or unilateral exercise of market power virtually impossible.

15. ENERGY INFORMATION ADMINISTRATION, GASOLINE TYPE PROLIFERATION AND PRICE VOLATILITY 2-4 (Sep. 2002).

16. *Id.* at 14 – 15.

17. *Id.* at 4 – 6.

18. *Id.* at 5; John Cook, *supra* note 9, at 3 – 5.

19. Prepared Statement of the Federal Trade Commission, Market Forces, Anticompetitive Activity, and Gasoline Prices: FTC Initiatives to Protect Competitive Markets, Presented by William E. Kovacic, General Counsel, Before the Subcommittee of Energy Policy, Natural Resources and Regulatory Affairs, Committee on Government Reform, United States House of Representatives (July 7, 2004).

In the last five years, however, FTC has found evidence of unilateral exercises of market power in two cases. In the first case, FTC took no action because unilateral withholding of capacity to increase prices does not violate antitrust law or any other federal statute.²⁰ In the second case, FTC filed a complaint in which it alleged that the firm “used false and misleading statements to induce a government body [the California Air Resources Board] to issue regulatory standards that conferred market power upon the firm.”²¹ An FTC Administrative Law Judge (“ALJ”) dismissed the complaint on the basis of his conclusion that the firm’s conduct was insulated from antitrust liability because it fell within the scope of the petitioning government defense.²² FTC reversed and vacated that ALJ decision and has remanded the case for further proceedings before the ALJ.²³

It should not come as a surprise that EIA and FTC have begun to detect problems in the performance of the gasoline market. State environmental regulations have transformed the gasoline market from a single national market with a large number of sellers to eighteen smaller markets, each with a small number of sellers.²⁴ When the new characteristics of the balkanized gasoline market are combined with the low price elasticity of demand for gasoline and refineries that almost always operate at full capacity,²⁵ we now have a plethora of distinct local and regional markets each of which is increasingly susceptible to either collusive or unilateral exercises of market power.

Unless we change our methods of regulating gasoline, these problems are likely to become much worse in the near future. EIA predicts that recent changes in air quality regulations will increase significantly the number of different types of gasoline that are sold in the U.S.²⁶ Thus, for instance, EIA predicts that eight new types of gasoline will be mandated on the East Coast alone over the next few years. As the balkanization of the gasoline market continues, and the

20. FEDERAL TRADE COMMISSION, *supra* note 8, at 21.

21. Opinion of the Commission, In the Matter of Union Oil Co. of California, File No. 011 0214, Docket No. 9305, at 1 (Fed. Trade Comm’n July 7, 2004).

22. Initial Decision, In the Matter of Union Oil Co. of California, File No. 011 0214, Docket No. 9305 (Fed. Trade Comm’n, Nov. 25 2003).

23. Order Reversing and Vacating the Initial Decision and Order and Remanding for Further Proceedings, In the Matter of Union Oil Co. of California, File No. 011 0214, Docket No. 9305 (Federal Trade Comm’n July 6, 2004).

24. ENERGY INFORMATION ADMINISTRATION, *supra* note 7.

25. FEDERAL TRADE COMMISSION, *supra* note 8, at 7 – 8.

26. ENERGY INFORMATION ADMINISTRATION, *supra* note 7, at 7 – 11.

number of types of gasoline increases to forty or fifty, the number of refining firms that participate in each market will continue to decrease and the risk of both collusive and unilateral exercises of market power will soar.

The primary sources of the growing problems in the gasoline market are easy to identify—environmental regulations that make it impossible to construct new refineries in the U.S. and environmental regulations that have increased dramatically the number of types of gasoline sold in the U.S. All refineries in the U.S. have been operating at or near maximum capacity in recent years. Both EIA and FTC have repeatedly warned that we can expect to experience increasing problems in the performance of the markets for gasoline and other refined petroleum products unless we increase our refining capacity substantially.²⁷ Yet, almost 50 refineries have closed in the last decade, and no new refinery has been built in the U.S. in twenty-five years.²⁸ The capacity of some existing refineries has been increased but not at the rate required to keep pace with the growth in demand for petroleum products.²⁹

The primary impediments to construction of new refineries and capacity expansion of existing refineries are state and local land use regulations.³⁰ The environmental regulatory obstacles to construction of new refineries or expansion of existing refineries are so formidable, and the local opposition to any such proposal is so determined, that it is hard to be optimistic about the prospect for overcoming those obstacles. To have any chance of success, any such strategy would have to include some means through which a federal agency, e.g., the Department of Energy (“DOE”), could pre-empt the power of state and local agencies to block or delay interminably the construction or expansion of a refinery, if DOE determines that the new or expanded capacity refinery is needed to meet the demand for petroleum products.

27. FEDERAL TRADE COMMISSION, *supra* note 8, at p. 22; John Cook, *supra* note 9, at 3; Prepared Statement of the Federal Trade Commission, *supra* note 19, at 26–27.

28. NATIONAL ENERGY POLICY DEVELOPMENT GROUP, NATIONAL ENERGY POLICY 7-14 (May 2001).

29. *Id.* at 7-13.

30. Federal courts sometimes contribute to the problem as well. Thus, for instance, the Ninth Circuit held that the Corps of Engineers could not issue a permit authorizing a refinery capacity expansion first proposed in 1969 without engaging in further study of the environmental effects of the expansion. *Ocean Advocates v. Army Corps of Eng'rs*, 361 F. 3d 1108, 1124 (9th Cir. 2004), *amended and superceded by* Nos. 01-36133, 01-36144, 2005 WL 525269 (9th Cir. 2005).

The proliferation of gasoline types is primarily attributable to the form of federalism we have adopted in implementing the Clean Air Act (“CAA”).³¹ EPA determines the maximum permissible concentration of various pollutants in the ambient air, and states then decide on a combination of regulatory actions to reduce emissions to the extent necessary to comply with the EPA ambient air standards.³² As EPA increases the stringency of the ambient air standards, an increasing number of localities are out of compliance by an increasing amount, and states must devise new means of attempting to reduce emissions in the non-attainment areas within each state. Each state responds by imposing different regulations on the composition of the gasoline that can be sold in each of several non-attainment areas within the state. That is the basic mechanism which produced an increase in gasoline types from three to twenty-one between 1990 and 2002, and that FTC and EIA predict will create a U.S. gasoline market with forty to fifty gasoline types within the next few years.³³ If this gasoline type proliferation is allowed to continue, along with the persistent and growing shortage of refining capacity, increased problems with the performance of U.S. gasoline markets are inevitable.

It is easy to identify a means of reducing the number of types of gasoline mandated for sale in the United States. Congress can amend the CAA by limiting the discretion of states to mandate particular types of gasoline. Congress took an analogous step in 1977 when it detected the risk that states would respond to EPA ambient air rules by mandating changes in automobile standards, which would result in a proliferation of types of cars. Congress recognized that a state-mandated proliferation of car types would cause significant problems in the performance of the automobile market. It avoided those problems by amending the CAA by adding provisions that limit each state’s power to mandate a particular car type. A state can mandate the sale of “California cars” or “non-California cars”, but no state can require the production and sale of a third type of car.³⁴ Congress could impose the same type of restriction on states’ discretion to mandate particular gasoline-types, e.g., a state can require a non-

31. Clean Air Act, 42 U.S.C. §§ 7401a – 7401c (2000).

32. See *Whitman v. Am.Trucking Ass'ns*, 531 U.S. 457, 462-64 (2001) (discussing this regulatory scheme).

33. ENERGY INFORMATION ADMINISTRATION, *supra* note 7.

34. See *Am. Auto. Mfrs. Ass'n v. Massachusetts Dep't. of Env'tl. Prot.*, 163 F. 3d 74, 77 – 78 (1st Cir. 1998) (discussing the operation and effect of these provisions).

attainment area to use a “Los Angeles gasoline” or a “Detroit gasoline”, but it cannot mandate sale of a third type of gasoline.

It is not clear whether such a federal restriction on states’ discretion to mandate gasoline types would reduce the average price of gasoline in the U.S. Generally, state gasoline type mandates have been designed to achieve the federally-mandated ambient air quality at the lowest cost to local gasoline consumers. Thus, for instance, if air quality goals can be achieved by mandating either a highly clean-burning gasoline that costs five cents more per gallon to produce or a moderately clean-burning gasoline that costs three cents more per gallon, a state typically mandates sale of the dirtier but cheaper gasoline type. States would be precluded from making that type of choice under the amendment to CAA I propose. I do not know whether the resulting increase in production cost would be less or more than the savings attributable to a more efficient distribution system and a market structure that once again renders it impossible for sellers to exercise market power. Even if the net effect of such an amendment to CAA is to increase the average price of gasoline, however, I would still consider it a major improvement over the status quo. Any price increases caused by continuing proliferation of gasoline types are a deadweight loss to society. Conversely, increases in production costs and prices attributable to increased use of cleaner-burning gasoline are likely to be more than offset by the social benefits of cleaner air.

II. LIQUEFIED NATURAL GAS

Natural gas is the cleanest burning fossil fuel. It accounts for twenty-three percent of the energy consumed in the U.S.³⁵ Its proportionate contribution to U.S. energy consumption has increased steadily and is expected to continue to increase for the foreseeable future, primarily because of its relatively benign effects on the environment.³⁶ Eighty-five percent of the gas consumed in the U.S. is produced domestically and another fourteen percent is imported from Canada.³⁷ Only one percent is imported from other countries in the form of liquefied natural gas.³⁸

35. ENERGY INFORMATION ADMINISTRATION, ANNUAL ENERGY OUTLOOK 9 (2004)

36. *Id.*

37. *Id.* at 9, 91; NATIONAL ENERGY POLICY DEVELOPMENT GROUP, *supra* note 28, at 1 – 7.

38. ENERGY INFORMATION ADMINISTRATION, THE GLOBAL LIQUEFIED NATURAL GAS MARKET: STATUS AND OUTLOOK 29 (Dec. 2003).

The amount of LNG the U.S. imports must increase substantially over the next ten years to avoid a large and growing gas shortage.³⁹ Deliverability from Canadian reserves has leveled off and is beginning to decline, while demand for gas in Canada is continuing to increase.⁴⁰ As a result, imports from Canada are projected to decline gradually over the next decade.⁴¹ Deliverability from U.S. reserves that have already been developed is also declining.⁴² The federal government has imposed a moratorium on exploration and development on lands that contain almost half of the remaining undeveloped reserves in the country.⁴³ Supply from new sources that have not been placed off limits by Congress or the President cannot possibly keep pace with the expected increases in demand. As a result, the U.S. must increase its imports of LNG by approximately five trillion cubic feet per year to avoid a large and growing shortage.⁴⁴ If the required increase does not occur in a timely manner, the price of gas will increase substantially, with severe adverse effects on both the performance of the economy and on air quality, as consumers switch to dirtier and less desirable fuels.

There are many reasons for optimism with respect to our ability to avoid a gas shortage by increasing our LNG imports. There are large gas reserves in many locations around the world that are not accessible to markets by pipeline.⁴⁵ With large stranded gas reserves located in many countries, the global LNG market will remain intensely competitive, and the U.S. should be able to contract to purchase enough LNG to meet our needs at reasonable prices.⁴⁶ Because of technological improvements, the cost of liquefying, transporting, and regasifying LNG has declined to the point at which imported LNG is not likely to cost much more than domestically produced gas.⁴⁷

At the federal level, the legal regime is also a source of optimism. In 2002, Congress enacted the Maritime Transportation Security Act in which it gave the Federal Energy Regulatory Commission (“FERC”) authority to approve the construction of onshore LNG

39. *Id.*

40. ENERGY INFORMATION ADMINISTRATION, *supra* note 35, at 91.

41. *Id.* at 91, fig.89.

42. *Id.* at 90, fig.87.

43. NATIONAL ENERGY POLICY DEVELOPMENT GROUP, *supra* note 28, at 5-7 to 5-10.

44. ENERGY INFORMATION ADMINISTRATION, *supra* note 35, at 91.

45. ENERGY INFORMATION ADMINISTRATION, *supra* note 38, at 4 – 16.

46. *Id.* at 32 – 41.

47. *Id.* at 42 – 46.

terminals and the Coast Guard authority to approve offshore terminals.⁴⁸ Each of those lead agencies has established an efficient but thorough multi-agency process for evaluating the environmental, safety, and operational effects of each proposed terminal.⁴⁹ Over twenty applications to construct LNG terminals have been filed since 2002.⁵⁰ The Coast Guard has already approved two applications for offshore terminals, while FERC has already approved one application for an onshore terminal.⁵¹ There is only one potential problem. Powerful NIMBY-based local opposition to each of the proposed terminals has emerged, and a variety of state and local agencies have claimed to have legal authority to block construction of each of the terminals.⁵² The courts have not yet decided whether state and local regulatory agencies can block construction of LNG terminals that have been approved by FERC or the Coast Guard. If the courts conclude that state or local agencies do have that power, the local opposition to LNG terminals is so powerful that the U.S. will be unable to construct enough terminals to avoid a catastrophic gas shortage. In such a case, the resulting conflict between state and local environmental regulation and national energy policy could only be eliminated by enactment of a statute that gives federal agencies or federal courts authority to override the decisions of state or local agencies when those decisions interfere with the nation's ability to obtain enough natural gas to meet our needs.⁵³

III. ELECTRICITY TRANSMISSION

By far the most important conflict between environmental regulation and energy policy at present is in the context of electricity transmission capacity. The U.S. has a large and growing shortage of

48. Pub. L. No. 107-295 § 106, 116 Stat. 2064 (2002).

49. ENERGY INFORMATION ADMINISTRATION, U.S. LNG MARKETS AND USES: JUNE 2004 UPDATE 9.

50. *Id.* at 1.

51. *Id.* at 7.

52. *See, e.g.*, Christian Schmollinger, *CPUC to Appeal FERC Denial of Say Over LNG Terminal Siting*, NATURAL GAS WEEK, July 12, 2004, at 3; Barbara Shook, *Texas Asserts Rights on LNG Siting*, NATURAL GAS WEEK, June 21, 2004, at 6; Jeff Gosmano, *Local Foes Biggest LNG Hurdle*, NATURAL GAS WEEK, June 4, 2004, at 5; John Sullivan, *Politics, Not Safety Main Risks to Future of LNG Industry*, NATURAL GAS WEEK, May 21, 2004, at 20; Barbara Shook, *Maine Rejects TransCanada LNG Terminal Plans a Second Time*, NATURAL GAS WEEK, May 14, 2004, at 1.

53. A bill has been introduced in the House of Representatives to give federal agencies preemptive power to authorize LNG terminals, but states oppose it. *See, e.g.*, Cal. Pub. Util. Comm'n, Mem. Opposing Enactment of H.R. 4413 (July 2, 2004).

electricity transmission capacity.⁵⁴ Eric Hirst has summarized nicely the importance of adequate transmission capacity to the performance of the U.S. electricity market:

Transmission generally enhances reliability; lowers the cost of electricity delivered to consumers; limits the ability of generators to exercise market power; and provides flexibility to protect against uncertainties about future fuel prices, load growth, generator construction, and other factors affecting the electric system.⁵⁵

Over the last twenty years, transmission capacity per megawatt of electricity generated has declined by thirty per cent, and it is expected to decline by another eleven per cent over the next decade.⁵⁶ Capacity declined by fourteen to twenty-seven per cent in each of the ten electricity regions during the last thirteen years.⁵⁷ The large and growing shortage of transmission capacity is already having severe adverse effects. Inadequate transmission capacity was one of the major causes of each of the price spikes and blackouts the U.S. has experienced in recent years, including the ten-fold increase in the price of electricity in California in 2001⁵⁸ and the northeast power blackout in 2003.⁵⁹ The increasingly inadequate capacity of the transmission grid has forced the National Electric Reliability Council (“NERC”) to increase the number of curtailments of electric service it has ordered by six hundred per cent over the last five years.⁶⁰ It now orders electricity curtailments almost two thousand times per year in the eastern United States alone.⁶¹ In addition, the regional bodies that operate the power grid estimate that transmission congestion now costs consumers \$4.8 billion per year—in the form of payments for high cost electricity when lower cost electricity would be available but for a transmission bottleneck.⁶²

54. DEPARTMENT OF ENERGY, NATIONAL TRANSMISSION GRID STUDY 5 – 7 (2002).

55. ERIC HIRST, U.S. TRANSMISSION CAPACITY: PRESENT STATUS AND FUTURE PROSPECTS v (August 2004).

56. *Id.* at 7, 9.

57. *Id.* at 11, fig.6.

58. Peter Navarro & Michael Shames, *Aftershocks—And Essential Lessons—From the California Electricity Debacle*, 16 THE ELECTRICITY J. 24, 26 (No. 4, May 2003); ERIC HIRST, THE CALIFORNIA ELECTRICITY CRISIS: LESSONS FOR OTHER STATES 6 (July 2001); Robert R. Nordhaus, *Electric Power Deregulation: Making Partially Deregulated Markets Work*, 54 ADMIN. L. REV. 365, 372 (2002).

59. EDWARD N. KRAPELS, GOODBYE GRIDLOCK (2): HOW TO END THE SHORTAGE IN TRANSMISSION INVESTMENT THAT LED TO THE NORTHEAST BLACKOUT (2003).

60. HIRST, *supra* note 55, at 7 – 8.

61. *Id.* at 8.

62. *Id.*

Ashley Brown has identified the primary source of this problem: benefits are regional, but costs are local.⁶³ Even though a transmission expansion project invariably confers large benefits in many states, the state in which the proposed project would be implemented has the power to block the project.⁶⁴ To make matters worse, twenty-two states allow localities to block transmission expansion projects.⁶⁵ Most proposed transmission expansion projects elicit powerful NIMBY-based local opposition.⁶⁶ Project opponents use state and local regulatory bodies to block implementation of most proposed projects. This problem has become so severe in many parts of the country that people have become unwilling to even propose a transmission expansion project.⁶⁷

The problem is particularly severe in the major metropolitan areas in which most of the U.S. population lives. Edward Krapels provides a nice description of this aspect of the problem in his study of the 2003 northeast power blackout:

In 90 percent of . . . the United States, it is challenging, but possible, to establish a mix of generation and transmission assets that constitute an efficient power infrastructure. In the other 10 percent, it is extremely difficult to do so, and over time these areas have evolved into 'load pockets.' These are typically densely populated areas where generation facilities were built decades ago, are difficult to refurbish (and thus highly polluting) and where transmission grids are similarly dated and compressed.

The majority of the people in this country live in that 10 percent of the landscape. Thus, the central interest in transmission policy should be—but seldom is—in the 10 percent of the landscape that contains the load pockets of the power markets. The load pockets include most of the major American cities, and so to a significant degree transmission policy should focus on how to bring power to the people who live in urban areas.⁶⁸

Over the last decade, FERC has created a competitive wholesale market that provides many consumers with the benefits of access to a

63. Ashley C. Brown, *Vision Without Site: Site Without Vision*, 16 THE ELECTRICITY J. 23, 23–34 (No.8, Oct. 2003).

64. *Id.* at 24.

65. ASHLEY C. BROWN, TRANSMISSION AND GENERATION SITING AND EXERCISE OF EMINENT DOMAIN POWERS: BACKGROUND PERSPECTIVE, AND THE CASE FOR A FEDERAL ROLE 3, 13 (2002).

66. As Edward Krapels aptly describes the situation: "Transmission projects are as popular as root canals." KRAPELS, *supra* note 59, at 19.

67. Eric Hirst, *Transmission Investment: All Talk and Little Action*, PUBLIC UTILITIES FORTNIGHTLY 49–54 (July 2004).

68. *Id.* at 7–8.

competitive market.⁶⁹ The millions of consumers that live in load pockets cannot obtain access to those benefits, however, during the frequent periods in which transmission constraints preclude generators outside the load pocket from selling to consumers inside the load pocket.⁷⁰ During those increasingly frequent periods of time, consumers within a load pocket are at the mercy of the few firms that own generators within the load pocket.

Our inability to reduce or eliminate the transmission bottlenecks that create load pockets also has severe adverse effects on the environment. The demographic and atmospheric conditions in most load pockets make them the worst possible places to generate electricity. If there were enough transmission capacity into a major metropolitan area, we could simultaneously reduce the cost of electricity to consumers in the area and improve the air quality of the area by replacing the electricity generated by the high polluting, technologically and economically obsolete generating units in a load pocket with electricity generated by modern low polluting generating units located in low population density areas.⁷¹ Instead, we are forced to operate the old dirty generating plants within the load pocket at maximum capacity and even to construct new generating plants in high population density locations that are poorly-suited to them.⁷²

Ashley Brown has collected a large number of cases from many states to illustrate the extreme difficulty of obtaining regulatory approval of a proposed transmission expansion project.⁷³ I will describe two that illustrate the nature of the problem particularly well. The first case illustrates the decisional framework that a state agency will use in deciding whether to approve a transmission expansion project. The Massachusetts Energy Facilities Siting Board approved a proposed project on the basis that the project was required to meet regional needs.⁷⁴ In *Point of Pines Beach Association v. Energy Facilities*

69. FERC's liberalization of the wholesale electricity market has reduced the average wholesale price of electricity by approximately thirty-six per cent. ELECTRIC POWER SUPPLY ASSOCIATION, *ASSESSING THE "GOOD OLD DAYS" OF COST-PLUS REGULATION* 5 (2001); *see also* PAUL JOSKOW, *THE DIFFICULT TRANSITION TO COMPETITIVE ELECTRICITY MARKETS IN THE U.S.* (2003).

70. KRAPELS, *supra* note 59, at 25.

71. *Id.* at 7 – 8.

72. *Id.* at 25 – 26.

73. Brown, *supra* note 63, at 26 – 34.

74. *Point of Pines Beach Ass'n, Inc. v. Energy Facilities Siting Bd.*, 644 N.E. 2d 221, 222 (Mass. 1995).

Siting Board,⁷⁵ however, the Massachusetts Supreme Judicial Court reversed the Board on the basis that it had erroneously considered out-of-state benefits in deciding to approve the project. The court held that a state agency can only consider in-state benefits when it decides whether to approve a project.⁷⁶ Many other states have mandated parochialism in this context.⁷⁷ Of course, even when a state agency is free to consider the out-of-state benefits of a project, political incentives favor considering only the in-state benefits of a proposed project.

State parochialism has a devastating effect on the prospects of approval of most proposed transmission capacity expansion projects. Except for projects proposed in Alaska, Hawaii, or parts of Texas, all transmission expansion projects have beneficial effects in many states.⁷⁸ Yet, state agencies consider only in-state benefits when they decide whether to approve a project. Thus, for instance, if a proposed project has beneficial effects evenly distributed over ten states, the state with the power to veto the project can be expected to exercise that veto power even if the benefits of the proposed project are nine times greater than its costs.⁷⁹ Of course, the situation is even worse in the twenty-two states that allow localities to veto proposed projects. If one per cent of the benefits of a proposed project fall within a locality with veto power, that locality can be expected to veto the project even if its benefits are ninety-nine times greater than its costs.

The second case illustrates well the difficulty of attempting to reduce transmission constraints into load pockets. The New York metropolitan area, including Long Island, is a classic load pocket that is subject to severe and growing transmission constraints.⁸⁰ In 2001, the Cross-Sound Cable Company proposed to expand the transmission

75. *Id.* at 224.

76. *Id.*

77. See Brown, *supra* note 63, at 26 – 34 (listing cases discussing mandated parochialism).

78. Electricity flows across an integrated grid in inverse proportion to the impedance on each line in accordance with Kirchoff's law. Thus, since the continental United States consists of three integrated grids—one that covers part of Texas, one that covers the rest of the country east of the Rockies, and one that covers the part of the country that is west of the Rockies—any change in transmission capacity at any location in the east effects the availability of electricity throughout the east and any change in transmission capacity at any location in the west affects the availability of electricity throughout the west. See PAUL L. JOSKOW, TRANSMISSION POLICY IN THE UNITED STATES 6 (AEI-Brookings Joint Center for Regulatory Policy, Related Publication 04-26, October 2004).

79. *Id.* Any rational state will refuse to approve a project with in-state costs that exceed its in-state benefits.

80. HIRST, *supra* note 55, at 20 – 21. See also KRAPELS, *supra* note 59, at 23 – 24.

capacity into that load pocket by burying a 330 megawatt cable under Long Island Sound from Connecticut to Long Island.⁸¹ The project was strongly supported by the federal government, the State of New York, and the regional entities responsible for the transmission grids serving New England and New York.⁸² The Corps of Engineers and the National Marine Fisheries Service approved the project on the basis of their conclusions that it would not have adverse effects on fisheries resources or on navigation.⁸³

The Connecticut Siting Council initially refused to approve the project because its benefits would accrue primarily to New York residents.⁸⁴ On reconsideration, however, the Council approved the project on the basis of its conclusions that “the proposed project would enhance the inter-regional electric transmission infrastructure and improve the reliability and efficiencies of the electrical system here in Connecticut as well as in New York,” and that “preparedness and cooperation are in the best interests of the State, the region, and the nation.”⁸⁵ Cross-Sound soon found out, however, that other institutions in Connecticut do not share the spirit of regional cooperation and patriotism reflected in the decision of the Siting Council.

When Cross-Sound installed the cable in 2002, it discovered that the cable laying ship it hired for that purpose was incapable of burying approximately one percent of the cable to the depth specified in its permit.⁸⁶ Cross-Sound applied to the Corps of Engineers and to the Connecticut Department of Environmental Protection (“CDEP”) for a waiver that would permit it to operate the cable with a small portion buried to a depth less than that specified in its permit.⁸⁷ Both CDEP and the Corps concluded that such a waiver would not have adverse environmental effects, but CDEP notified Cross-Sound that it could not operate the cable on “procedural” grounds without burying one hundred per cent of the cable to the depth specified in its permit.⁸⁸ CDEP also notified Cross-Sound that CDEP could not consider

81. Linda L. Randell & Bruce L. McDermott, *Chronicles of a Transmission Line Siting*, PUB. UTIL. FORT. 1 – 2 (Jan. 1, 2003).

82. Alan G. Schwartz & Bruce L. McDermott, *Lessons from the Trenches: Burying the Lines Is Tough*, INFRASTRUCTURE 2 (Spring 2002).

83. Linda Randell & Bruce McDermott, *Cross-Sound Blues*, PUB. UTIL. FORT. 20 (Feb. 2004).

84. Brown, *supra* note 63, at 29.

85. Schwartz & McDermott, *supra* note 82, at 2; Brown, *supra* note 63, at 28 – 29.

86. Schwartz & McDermott, *supra* note 82, at 3.

87. Randell & McDermott, *supra* note 83, at 22.

88. *Id.* at 20.

Cross-Sound's application for a waiver or its application to take any other action that would allow it to operate the cable because the Connecticut Legislature had enacted a moratorium on transmission lines under Long Island Sound.⁸⁹

Because of the Connecticut moratorium, Cross-Sound was unable to operate its transmission line until August 2003.⁹⁰ Then, in the wake of the northeast power blackout, the Department of Energy issued an emergency order that required Cross-Sound to transmit electricity to New York.⁹¹ In May 2004, DOE determined that the emergency was over and cancelled the emergency order.⁹² Cross-Sound then shut down the cable, but it also asked FERC to authorize it to reactivate the cable.⁹³ FERC convened a settlement conference. On June 24, Cross-Sound, New York, and Connecticut, represented by its Department of Public Utility Control, agreed on a settlement that would allow the cable to be reactivated.⁹⁴ On the same day, however, the Connecticut Attorney General announced that he had not agreed to the settlement and that he was considering opposing it.⁹⁵ Thus, the Cross-Sound transmission cable remains in a state of legal limbo.

In the meantime, the fate of the Cross-Sound project has sent a clear message to anyone else who was considering whether to propose a transmission expansion project to reduce the transmission bottlenecks into the New York Metropolitan area. That message is: don't even think about it. Given the powerful opposition to all above-ground transmission lines, underwater lines were viewed as the only hope to reduce the extreme level of transmission congestion into the New York metropolitan area.⁹⁶ If a project sponsor cannot even convince state authorities to allow it to operate a critically-needed underwater transmission line in circumstances in which every agency has determined that activation of the line will have no adverse effect on

89. *Id.* at 20 – 22.

90. *Id.*

91. *Id.*

92. Department of Energy Order No. 202-03-4 (May 7, 2004).

93. FERC News Release, Statement of FERC Chairman Pat Wood, III on Long Island Sound Electric Cable Settlement (June 24, 2004) available at <http://www.ferc.gov/press-room/pr-archives/2004/2004-2/06-24-04.pdf> (last visited Apr. 15th, 2005).

94. *Id.* See also David Udoff, *NY, Conn. Reach Settlement to Re-Activate Cross-Sound Cable*, NATURAL GAS WEEK, June 28, 2004, at 1 – 3.

95. Connecticut Attorney General's Office, Press Release, Attorney General's Statement on FERC Decision on Cross-Sound Cable (June 24, 2004).

96. KRAPELS, *supra* note 59, at p. 19.

the environment, other transmission expansion projects have no realistic chance of being approved.

The conflict between state and local environmental regulation of transmission lines and pursuit of national energy goals is already costing consumers many billions of dollars per year. If this conflict is not resolved in the near future, it will produce even higher electricity costs and frequent blackouts. The conflict can be eliminated by conferring on a federal agency or on the federal courts authority to override the decisions of state and local governments when those decisions interfere with pursuit of national energy policy goals.

CONCLUSION

Each of the three conflicts I have identified between environmental regulations and national energy policy involve state environmental regulation. I have not identified any clear conflicts between federal environmental regulations and national energy policy. That is primarily because I have chosen to define a conflict between environmental regulations and national energy policy as an environmental regulation that reduces energy supplies or increases energy costs without any significant offsetting environmental benefit. If I had chosen to define such conflicts to include all environmental regulations that reduce energy supplies or increase the cost of energy, I would have identified countless thousands of conflicts between federal environmental regulations and national energy policy. I reject that broad definition of a conflict, however, because it is inconsistent with my use of allocative efficiency as my normative basis for identifying a conflict.

It should come as no surprise that I have not identified any clear conflict between federal environmental regulations and national energy policy through application of my criterion for identifying a conflict. Any time a federal agency is required to decide whether to approve proposed projects that will create some energy benefits at some environmental cost, it strives to approve only projects with benefits that exceed their costs. Similarly, any time a federal agency is required to decide whether to impose regulations that will create environmental benefits at some energy cost, it strives to issue only those regulations with benefits that exceed their costs. Federal agencies undoubtedly err on occasion in making those decisions, but my inability to identify those errors reflects the difficulty of the task of second-guessing agencies that are required to make judgment calls in a complicated environment that is fraught with uncertainty.

Conversely, it should come as no surprise that I have been able to identify three contexts in which state and local environmental regulations conflict in serious ways with pursuit of national energy policy. Systemic conflicts between state regulation and the national interest are inevitable. When a state decides to issue an environmental regulation, it considers only the in-state costs and benefits of the regulation. Thus, for instance, a state might decide to mandate three new idiosyncratic types of gasoline for use in each of three non-attainment areas in an effort to minimize the additional cost of gasoline in each of those areas even though the effect of that decision, combined with similar decisions by other states, is to create so many different types of gasoline that the national gasoline sales and distribution markets perform poorly.

Similarly, when a state decides whether to approve a project, it considers only the in-state costs and benefits of the project. Thus, for instance, a state will veto a proposed LNG terminal or transmission expansion project that will create benefits nine times as great as its costs if all of the costs are incurred within the state and only ten per cent of the benefits accrue to state residents.

Serious systemic conflicts of this type can be avoided only by creating a better match between the geographic scope of regulatory actions and the institutions with the power to take those actions. In each of the contexts I have discussed, we can eliminate the conflict only by reducing the power of state and local regulators and/or by transferring some regulatory authority from state and local agencies to federal agencies. In each case, it would be easy to draft a statute that would avoid the conflict because Congress has already enacted statutes that eliminate similar conflicts.

The conflict created by state gasoline-type mandates can be eliminated by adding to the Clean Air Act a provision analogous to the “no third car” provision. In 1977, Congress recognized the risk that states might inadvertently create chaos in the car market by mandating the sale of many different types of cars with different pollution control technologies. Congress avoided that risk by limiting states’ choices of car types. A state can mandate sale of “California cars” or “non-California cars,” but it cannot mandate sale of a third type of car.⁹⁷ Congress could, and should, head off the problems that

97. For a good description of the “no third car” rule, see *American Automobile Manufacturers Ass’n v. Massachusetts Department of Environmental Protection*, 163 F. 3d 74 (1st Cir. 1998).

are emerging in the performance of the gasoline market by imposing an analogous limit on each states' discretion to mandate gasoline types, e.g., a state can mandate sale of "Los Angeles gasoline" or "Detroit gasoline," but it cannot mandate sale of a third type of gasoline.

The other sources of the conflicts I have identified are state and local land use decisions that conflict with national energy policy. States and localities are making land use decisions that make it impossible to construct the refineries, LNG terminals, and transmission lines that are essential to the nation's ability to obtain adequate energy supplies at acceptable costs. Existing federal statutes provide two models that Congress can use as the basis for statutes that eliminate these conflicts. The first is section 7 of the Natural Gas Act. That statutory provision authorizes FERC to make preemptive decisions to authorize construction of interstate pipelines.⁹⁸ Congress can enact statutes analogous to section 7 of the Natural Gas Act in which it confers power on a federal agency to make pre-emptive decisions to authorize construction of refineries, LNG terminals, and transmission lines. Alternatively, if Congress wants to leave states and localities some degree of discretion over land use decisions of this type, it could enact statutes analogous to the Telecommunications Reform Act of 1996.⁹⁹ That statute allows state and local agencies to make land use decisions that have potential effects on attainment of national telecommunications policy goals, e.g., decisions to grant or deny permits to construct cellular phone towers. The statute then instructs federal courts to review those state and local decisions and to reject those that are inconsistent with attainment of national telecommunications policy goals.¹⁰⁰ Congress could enact analogous statutes that instruct federal courts to review state and local land use decisions that have potential effects on attainment of national energy policy goals and to reject those that interfere with attainment of those goals.

There is one major problem with my proposed means of eliminating these conflicts. It assumes that Congress is willing and able to enact socially-beneficial energy legislation. That is not at all clear. The energy legislation proposed by the Bush Administration in 2001 and the Bills subsequently enacted by the House and Senate included

98. 15 U.S.C. § 717 (2000).

99. Pub. L. 104-104, 110 Stat. 5b (1996).

100. See RICHARD J. PIERCE, JR., 2005 CUMULATIVE SUPPLEMENT TO ADMINISTRATIVE LAW TREATISE § 18.7 (2004).

some provisions of the type I support.¹⁰¹ In each case, however, those few socially-beneficial provisions were buried in a mass of other provisions with highly dubious effects and mixed with an extraordinary amount of pure pork. The effort to enact a sensible energy statute is being held hostage by members of Congress who are debating issues like how many additional billions of dollars Archer Daniels Midland should receive in ethanol subsidies and whether plaintiff's lawyers should be allowed to earn billions of dollars in contingent fees by suing the manufacturers of the gasoline additive MTBE.¹⁰² Unless and until Congress becomes serious about enacting a relatively pork-free energy statute, the conflicts I describe will continue and will render it impossible to have efficiently functioning energy markets.

101. Thus, for instance, both President Bush's proposed legislation and each of the Bills that has been enacted by the House or Senate to date include provisions that would increase the authority of the federal government to authorize implementation of electricity transmission expansion projects. NATIONAL ENERGY POLICY DEVELOPMENT GROUP, NATIONAL ENERGY POLICY 7-17 (May 2001); Michael Burr, *A study in States' Rights*, PUB. UTIL. FORT. 21 (Feb. 2004).

102. See *House Again Passes GOP Energy Measure*, THE WASHINGTON POST, June 16, 2004, at A4; *Energy Follies*, THE WASHINGTON POST, Apr. 29, 2004, at A24; *Energy Voodoo*, THE WASHINGTON POST, Feb. 8, 2004, at B6; *The GOP Congress: High on the Hog*, THE WASHINGTON POST, Jan. 18, 2004, at B1; *Better Energy Legislation*, THE WASHINGTON POST, Nov. 29, 2003, at A22.