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Jacqueline Lang Weaver

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KERLIN LECTURE

**The Federal Government as a Useful Enemy:
Perspectives on the Bush Energy/
Environmental Agenda from the
Texas Oilfields¹**

JACQUELINE LANG WEAVER

I. Introduction

I am just delighted to be at Pace as the Kerlin Distinguished Lecturer in Environmental Law. I would like to thank Dean Cohen for his gracious introduction and the folks in Pace's renowned environmental program, especially Nick Robinson, who holds the Kerlin Chair. I would also like to thank former Congressman and Dean, Richard Ottinger, of Pace's Energy Project, for doing so much to arrange my visit here this semester. But surely, dear audience, you must be asking yourself—what is a Texas oil and gas lawyer doing here as the Kerlin lecturer in Environmental Law? Isn't that a contradiction in terms? And a professor from Houston no less, the energy capital of the nation, indeed the world, and

1. Copyright Jacqueline Lang Weaver, A. A. White Professor of Law, University of Houston Law Center. I would like to thank Gilbert and Sarah Kerlin for endowing the lectureship which allowed me to visit at Pace's Energy Project during the fall semester of 2001. I also want to acknowledge the summer research support of the University of Houston Law Foundation and the excellent research assistance of Rochelle Jozwiak, University of Houston Law Center class of 2001. John Servidio of SNS Architects & Engineers provided valuable assistance with the powerpoint presentation that accompanied the lecture. This article is a longer adaptation of the speech given as the Kerlin Distinguished Lecturer in Environmental Law on September 20, 2001 at Pace Law School.

home to the U.S. headquarters of energy giants like ExxonMobil, Shell, Conoco, Enron, Reliant Energy, Dynegy and many others that have so often been in the news of late.

And yet, the invitation came at such a propitious time: A Texas governor who had grown up in Midland, Texas—a virtual one-industry town (oil and gas)—and who followed his father's footsteps into business as an independent oilman in Midland, is now president of the United States. President George W. Bush has often stated that his values were set in place in Midland, in what most people would describe as an arid, desolate, wind-scoured piece of earth. His Vice President, Dick Cheney, is an ex-oilman from Wyoming. The current head of FERC, the Federal Energy Regulatory Commission, is also a Texan. George W. Bush and Dick Cheney, chastising the Clinton presidency for its lack of leadership in developing a national energy policy, have proclaimed that the U.S. has an energy crisis, and in rapid response, developed a National Energy Policy as one of their first acts in office. Wholesale review of environmental laws that might stand in the way of producing more energy has been ordered.² It seems clear to many that, in the new administration, the energy versus environment balance will swing toward energy and away from environmental protection. In addition, the political philosophy of the new President professes to strongly favor state versus federal power in regulatory matters.

On a more personal note, all New Yorkers in the audience are bound to the Texas oil and gas industry through New York's full membership in the Interstate Oil Compact Commission, a commission that binds all thirty-seven producing states in the United States in the common goal of conserving oil and gas resources.³

It is interesting to ask what lessons can be culled from the Texas oil fields about the role of government regulation, and in particular the role of the federal government versus the states in the conservation of oil and gas, and Texas's other most precious natural resource—water. What might these lessons portend for a Bush energy policy?

2. See NAT'L ENERGY POL'Y DEV. GROUP, NATIONAL ENERGY POLICY, A STUDY BY THE NATIONAL ENERGY POLICY DEVELOPMENT GROUP viii (2001) [hereinafter NAT'L ENERGY POL'Y STUDY].

3. INTERSTATE OIL & GAS COMPACT COMM'N, A DEPENDENT NATION: HOW FEDERAL OIL & GAS POLICY IS ERODING AMERICA'S ECONOMIC INDEPENDENCE 31 (2000) [hereinafter A DEPENDENT NATION].

In particular, the production of both oil and water in Texas is still heavily influenced by the common law Rule of Capture.⁴ Under this rule, a landowner can drill a well and produce as much oil and gas or water as she can pump, even if huge amounts of the resource are drained from underneath neighbors' lands, and even if the pumping has deleterious effects on spring flows, land subsidence, flora and fauna, and efficient production practices.⁵ The Rule of Capture is a classic illustration of the Tragedy of the Commons, a paradigm in environmental law, most recently reflected in the debates over global climate change.⁶ The world is overusing a global commons, the earth's atmosphere. The U.S. energy industry and U.S. consumers are the biggest grazers in this commons.⁷ Global climate change itself is just a larger scale paradigm of the use of the atmosphere as a wastebasket for pollution. Our nation has grappled with this problem through passage of a huge body of federalized law, the Clean Air Act.

In this regard, this lecture joins the vigorous debate among environmentalists over state versus federal environmental standard-setting. One compelling rationale for federal environmental regulation has been the argument that states compete against each other for industry and jobs, and so engage in a destructive "race to the bottom" in environmental standard-setting that ultimately leaves all states with a lower level of social welfare.⁸ Federal environmental standard-setting prevents this destructive race and so enhances state welfare.

Recently, the federal rationale for environmental standard-setting has been questioned by revisionist critics who contend that state interests have been sacrificed on the altar of federal supremacy in environmental standard-setting.⁹ Using neo-classical welfare economic theory, these critics argue that competition

4. JACQUELINE LANG WEAVER, UNITIZATION OF OIL AND GAS FIELDS IN TEXAS 21 (1986) [hereinafter WEAVER, UNITIZATION].

5. *Id.*

6. See John Anderson, *Why Global Warming Matters to the Texas Gulf Coast*, HOUS. CHRON., Aug. 18, 1996, at 4C.

7. Energy-related activities represent about 85% of the manmade greenhouse gas emissions in the U.S. NAT'L ENERGY POL'Y STUDY, *supra* note 2, at 3-10. The U.S. is the world's largest emitter of greenhouse gases accounting for approximately 25% of global emissions. PEW CENTER ON GLOBAL CLIMATE CHANGE, INNOVATIVE POLICY SOLUTIONS TO GLOBAL CLIMATE CHANGE—INTRODUCTION, at <http://www.pewclimate.org/policy/program-intro.cfm> (last visited March 29, 2002).

8. Kirsten H. Engel, *State Environmental Standard Setting: Is There a 'Race,' and Is It 'To the Bottom'?* 48 HASTINGS L.J. 274-277 (1997).

9. *Id.* at 276-277.

among states for industry is welfare-enhancing, not welfare-reducing, and that social losses from reduced environmental quality are compensated for by gains from increased economic activity. Each state's individual pursuit of its own self-interest will lead to a socially optimal allocation of environmental quality and economic goods for all states. If this position is correct, then recent political efforts to dismantle the current framework of federal environmental laws, and recent rulings by the U.S. Supreme Court restricting the power of the federal government vis-à-vis the states, arguably are to be applauded. Still, it is essential to note that economic efficiency is not the only rationale for a strong federal role in environmental regulation. Federal involvement is also justified based on the need to reduce interstate spillovers (e.g., coal-fired power plants in the Midwest which pollute the Northeast); to reap the benefits of centralized scientific expertise and funding beyond the ability of any one state (e.g., modeling of global climate change); and, most importantly, to guarantee a minimum standard of health to every American everywhere in the U.S., a goal which a large majority of the U.S. citizenry has consistently supported.¹⁰

The stakes in this debate are obviously huge. The debate itself pits neoclassical welfare theory against the game theoretic approach of the Tragedy of the Commons.¹¹ But theories aside, what does the empirical evidence tell us about the merits of each side's arguments? Professor Kirsten Engel for one, has attempted to answer this question, and concludes that the evidence better supports the race to the bottom theory: States do compete for industry and in the absence of uniform federal standards setting a floor on pollution, states would lower both environmental standards and social welfare.¹² Other scholars have concluded that different political dynamics at the state and federal levels might lead one to favor one level of government over another;¹³ in short, that context is crucial. Perhaps there are unique factors in the Texas situation which argue more strongly for state control versus federal control. Thus, a historical look at the Texas oil and gas industry and its conservation/environmental record may provide valuable insights into the need for (and proper role of) the federal government in energy/environmental policy today. At the very least, it

10. *Id.* at 285-290.

11. *Id.* at 275.

12. *Id.* at 314-15, 341.

13. *Id.* at 274 n.3.

should give us some insights, albeit impressionistic, into the mindset of the Texas oilman, Texas Governor, and West Texas rancher who is now President of the United States.

II. Setting the Stage

A. *Some unique factors*

Let's set the stage first and look at some factors unique to Texas as a state. First, Texas is the Lone Star state. It has virtually no federal lands. Something in the Texas culture has always distrusted the federal presence. Despite having one of the longest coastlines in the U.S and a very active offshore oil industry, Texas adamantly refused for years to accept federal money under the Coastal Zone Management Act¹⁴ to plan how to reconcile offshore energy development with the ecological needs of recreation, tourism, fishing and other coastal uses.¹⁵ Texas is still the Lone Star state on the national electrical grid. Almost all of the state's electricity is generated and distributed intrastate through ERCOT, the Electric Reliability Council of Texas, without any interconnections to the rest of the nation.¹⁶

Second, Texas is the largest oil and gas producer in the U.S.¹⁷ Oil and gas provide 62% of the nation's energy.¹⁸ Oil and gas are unique commodities in the world economy today because oil is the lifeblood of our transportation system, and gas is the cleanest of the fossil fuels used for heating, power generation and industrial processes.¹⁹ Dependence on imported oil from unstable countries has geopolitical ramifications far beyond the Texas borders.

Third, in Texas, all three branches of state government regulating the oil and gas industry are elected—the legislature, the judiciary, and the three members of the expert administrative agency that oversees the oil and gas industry, the Texas Railroad

14. 16 U.S.C. §§ 1451-1464 (1972).

15. COASTAL COORDINATION COUNCIL, TEXAS COASTAL MANAGEMENT PROGRAM, available at <http://www.glo.state.tx.us/coastal/cmp.html> (last updated Dec. 17, 2001). The Coastal Zone Management Act passed in 1972. Texas waited until 1995 to apply for funds and received approval in 1997.

16. ERCOT, ERCOT: THE TEXAS CONNECTION, at <http://www.ercot.com> (last updated May 4, 2001).

17. Jacqueline Lang Weaver, *The Politics of Oil & Gas Jurisprudence: The Eighty-Six Percent Factor*, 33 WASHBURN L.J. 492, 499 (1994) [hereinafter Weaver, *The Eighty-Six Percent Factor*].

18. NAT'L ENERGY POL'Y STUDY, *supra* note 2, at 5-3.

19. *Id.*

Commission.²⁰ This Commission administers all the conservation laws related to oil and gas.²¹ These conservation laws are designed to maximize the efficient recovery of oil and gas from reservoirs, largely by controlling rates of production and drilling patterns in oil and gas fields.²² In addition, these conservation laws are entirely the preserve of the states in contrast to the large body of federal environmental law such as the Clean Air and Water Acts. Moreover in Texas, the state environmental agency, the Texas Natural Resources Conservation Commission, (TNRCC) regulates all industries except the oil and gas industry.²³ This one industry remains subject to the Texas Railroad Commission, both for oil and gas conservation and environmental protection.²⁴

B. *Setting the stage—some basic oil and gas law*

One oil well can typically drain forty acres and one gas well can drain 640 acres.²⁵ It would be very inefficient for each landowner to drill a well in his backyard on a forty-acre tract in the town of Kilgore, Texas, where forty happy homeowners reside on one-acre lots overlying a newly discovered oil field. Yet, if only one landowner was permitted to drill, the common law Rule of Capture would allow that one owner to keep all the oil and gas coming from that well, even though more than 95% of the oil was being drained from her neighbors—a patently unfair result.

How are both efficiency and fairness to be achieved? One well should be drilled on the forty acres and all the separate owners should share in its production—1/40 each. This is called pooling,

20. See Weaver, *The Eighty-Six Percent Factor*, *supra* note 17. The Texas Railroad Commission (RRC), admittedly an odd name for a state oil and gas conservation agency, was created by the populist Texas legislature in 1891 to fight the monopolistic power of the eastern-owned railroads. The same populist philosophy fought against the concentrated economic power of the large, vertically integrated major oil companies, especially those owned and financed by eastern capitalists such as John D. Rockefeller of Standard Oil of New Jersey (now ExxonMobil). When Texas realized that it needed a state agency to regulate oil pipelines, largely because people were being burned to a crisp in pipeline explosions, the legislature gave the Railroad Commission power over this new form of transportation. Then in 1919, the Commission was given power over oil field production practices, which now form the core of its mission—but its name was never changed. *Id.*

21. *Id.* at 492.

22. WEAVER, UNITIZATION, *supra* note 4, at 6.

23. TEXAS NAT. RESOURCE CONSERVATION COMM'N, ABOUT THE TNRCC, at <http://www.tnrcc.state.tx.us> (last modified Nov. 27, 2001).

24. WEAVER, UNITIZATION, *supra* note 4, at 3.

25. *Id.* at 21.

putting small tracts into pooled units that can efficiently drain a certain amount of acreage.²⁶

Oil flows from wells because pressurized gas or water in the reservoir rock expands and pushes the oil through the tiny pore spaces of rock toward the low-pressure area around the well bore.²⁷ The single most important factor in maximizing the efficient recovery of oil is to control the field's rate of production so that the gas drive or water drive in the field lasts as long as possible, letting the forces of mother nature push the oil from deep underground.²⁸ The second most important factor is the placement of wells.²⁹ No wells, not even wells on nicely spaced forty-acre units, should be drilled into the reservoir near the gas cap or water drive that is pushing the oil out. Such wells will bring up large amounts of gas or water with the oil, prematurely dissipating the reservoir pressure in the field.³⁰ Thus, depending on the direction of the gas or water drive, no wells should be drilled, for example, on the western part of a field where the water drive is pushing the oil eastward. Yet, if a conservation agency prohibits wells from being drilled on the western side, and the eastern well owners do not share their oil with the western owners, we again have an unfair, perhaps even unconstitutional, result.

The universal prescription for maximizing the recovery of oil in a way that is fair to all landowners is fieldwide unitization.³¹ All owners should put their acreage into a cooperative unit covering the entire field, and each owner should get her fair share from unit production. Thus, even though the owner of a forty-acre tract on the western edge of a field is prevented from drilling a well on his tract in order to conserve reservoir energy, he will nonetheless receive a fair share of production from the efficient wells drilled to the east. All owners receive fractional shares of a much larger pie. Properly regulated reservoirs can produce 30% to 80% of the oil in the ground compared to the 5% recovered under unrestrained conditions.³²

Without compulsory process, pooling and unitization are not likely to occur. While it might be possible to imagine forty land-

26. *Id.*

27. *Id.* at 9-10.

28. *Id.* at 13.

29. *Id.*

30. WEAVER, UNITIZATION, *supra* note 4, at 14.

31. *Id.* at 9-29.

32. *Id.* at 9-13.

owners on their one-acre tracts agreeing that each owner should receive a 1/40 share of the unit well, it is more likely that at least one of the owners will argue that they have a thicker part of the reservoir underneath their tract and that they should therefore get more than 1/40 of the unit well's oil. The difficulty of getting voluntary agreement is multiplied exponentially when a fieldwide unitization agreement is attempted, often involving dozens of different operators and hundreds, if not thousands, of different royalty interest owners who have leased to them. In the example above, the eastern owners are unlikely to agree with the western owners as to what constitutes fair shares in a reservoir 10,000 feet beneath the ground. For this reason, the conservation agencies in producing states have been given the power to compulsorily unitize fields. Once a certain percentage of owners, from 65% to 85%, agree on a unitization plan that maximizes field recovery and offers fair shares to all owners, the conservation agency can force the other unwilling owners into the unit and the field can be developed properly.³³

And now for the kicker: Texas, the largest producing state in the country, has the weakest conservation laws.³⁴ Texas does not have the one statute, compulsory unitization, that can assure efficient and fair development of its oil fields.³⁵ Also, Texas has a weak compulsory pooling act that does not apply to many older fields, and which cannot be used to facilitate the new technologies of 3D seismic, hydraulic fracturing and horizontal drilling that have lowered costs of finding and producing oil and gas dramatically in the United States.³⁶ How can this be?

III. The Rule of Capture in Early Texas Oil Fields: Conservation Law through the Eyes of the Texas Independent Producer

This Kerlin lecture begins an exciting milestone of celebration at Pace—its 25th anniversary year of service to the legal community. To a Texan, the year 2001 marks the 100th anniversary of an event that would transform Texas, and indeed the U.S. econ-

33. David W. Eckman, *Statutory Fieldwide Oil & Gas Units: A Review for Future Agreements*, 6 NAT. RESOURCES LAW. 339 (1973).

34. Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 499.

35. See Jacqueline Lang Weaver, *Unitization Revisited*, 45 INST. ON OIL & GAS L. & TAX'N 7-5, 7-6 (Matthew Bender & Company, Inc. 1994) [hereinafter Weaver, *Unitization Revisited*].

36. *Id.* at 7-10.

omy. In the first week of January, 1901, the largest gusher the world had ever seen spewed 800,000 barrels of oil across the coastal plain just southeast of Houston.³⁷ Oil in unimaginable torrents flowed from this well. Thousands of people traveled to the see this sensation, many pressing close enough to feel the black mist on their faces.³⁸

Within five years of its discovery, the Spindletop field had gone from boom to bust. Drillers swarmed into the Beaumont area, leased every acre, including pig sties, drilled as many wells as they could squeeze on to each lease, and then produced oil at full flow in order to out-drain the rival operator next door.³⁹ Under the Rule of Capture, the race is to the quickest.⁴⁰ Five percent of the oil underlying the field was produced using the natural pressure in the field but 95% of the oil remained locked in the pore spaces of the underground reservoir.⁴¹ This pattern repeated itself in newly discovered oil fields in West Texas.⁴² During the first two decades of the 20th century, millions of barrels of oil ran down creeks and streams or were put in earthen storage subject to fire, evaporation and floods.⁴³ Gas, then an unwanted byproduct of the production of oil, was flared or vented by the billions and even trillions of cubic feet.⁴⁴

Perhaps there was an excuse at that time for this dreadful waste; the oil industry lacked firm scientific knowledge about petroleum engineering and the movement of this "occult" resource thousands of feet underneath the ground. However, by 1930 when the largest oil field in the world (in its time) was discovered in East Texas,⁴⁵ petroleum engineers knew much about conservation principles and the importance of conserving the gas drive or water drive in a field to obtain huge increases in recovery rates. Indeed, in 1924, one of the directors of the American Petroleum Institute, an organization of the largest oil companies in the nation which

37. WALTER RUNDLELL, JR., *EARLY TEXAS OIL: A PHOTOGRAPHIC HISTORY, 1866-1930* at 37 (Texas A&M Univ. Press 1977).

38. LAWRENCE GOODWYN, *TEXAS OIL, AMERICAN DREAMS* 19 (Texas State Hist. Ass'n) (1996). A careless onlooker's lighted match started an enormous fire.

39. *Id.* at 19-20.

40. WEAVER, *UNITIZATION*, *supra* note 4, at 21.

41. SPINDLETOP-GLADYS CITY BOOMTOWN MUSEUM, *SPINDLETOP HISTORY & BIOGRAPHIES* at <http://www.spindletop.org> (last visited Jan. 27, 2002).

42. *AN INFORMAL HISTORY COMPILED FOR ITS CENTENNIAL, THE RAILROAD COMM'N OF TEXAS, OIL & GAS* (Apr. 1991).

43. *Id.*

44. WEAVER, *UNITIZATION*, *supra* note 4, at 143.

45. *Id.* at 39.

had been formed to mobilize petroleum resources for the war effort during World War I, wrote a forceful letter to President Coolidge calling for federally enforced compulsory unit operation in all fields to prevent the incredible waste that was so contrary to the national interest in conservation.⁴⁶ For his efforts, this director, Henry Doherty, was shunned by the other members of the API.⁴⁷ The other directors, some of whom even denied that waste existed, were united in their abhorrence of Doherty's proposed solution, which involved both compulsion and the federal government. Treated as a pariah by the industry, Doherty wrote directly to President Coolidge, calling for the federal government to pass a statute compelling the unitization of oil and gas fields in the U.S. if states did not pass such conservation laws themselves.⁴⁸

Concerned, President Coolidge created the Federal Oil Conservation Board to investigate waste and conservation in the petroleum industry.⁴⁹ The API submitted a report to the Board declaring that waste in the production and use of petroleum was "negligible,"⁵⁰ and that the only legislation needed for a strong industry were laws, both federal and state, that exempted oil operators from the antitrust laws, permitting them to curtail operations and production voluntarily. Clearly, the concern of the industry's major players was price stabilization, not true conservation. In 1926, the Board issued its first report, strongly preferring state control of oil and gas conservation on private lands, but bitterly denouncing the waste of oil on federal lands in petroleum reserves.⁵¹ Ultimately, the federal government would impose compulsory unitization on all federal public lands,⁵² but the states were left free to solve their own Tragedies of the Commons.

The decade of the 1930s was replete with state and then federal attempts to bring order to the oil fields to prevent the sort of massive waste that had occurred at Spindletop.⁵³ The discovery of the gigantic East Texas field by Dad Joiner, an independent wildcatter, on October 9, 1930, set off a frenzied drilling spree such that a year later more than 3,000 wells had been completed in the

46. ERICH W. ZIMMERMAN, CONSERVATION IN THE PRODUCTION OF PETROLEUM 121-32 (1957).

47. *Id.* at 123.

48. *Id.*

49. *Id.* at 124.

50. *Id.* at 126-27.

51. *Id.* at 128.

52. ZIMMERMAN, *supra* note 46, at 187.

53. *Id.* at 144.

field.⁵⁴ This discovery occurred in the midst of the Great Depression of 1929, and poverty stricken farmers and unemployed workers saw oil as their salvation. By May 1, 1931, East Texas was producing more than one million barrels of oil per day at a price of ten cents per barrel versus its 1930 price of about one dollar per barrel.⁵⁵ On this day, the Railroad Commission issued its first proration order limiting production from the field, but it was largely ignored by the operators.⁵⁶

Two months later, Governor Sterling called a special session of the legislature to pass a conservation act to aid the “demoralized and tottering” oil industry, the thousands of people in the industry going bankrupt, and the state’s treasury which was losing millions of dollars in reduced production taxes.⁵⁷ The hearings lasted two weeks and focused on one key issue: Whether the Railroad Commission should be given the authority to prorate oil production for the sole purpose of preventing the physical waste of the resource, as dictated by the science of petroleum engineering, or whether the Commission should restrict production even further to prevent “economic waste.”⁵⁸ To many witnesses, economic waste meant the production of oil at an unreasonably low price so that producers could not earn a fair profit. However, some witnesses, particularly the major oil companies and Humble Oil & Refining in particular, included in economic waste the excessively high costs of production resulting from drilling many more wells than were necessary to drain a field efficiently.⁵⁹ These excessive costs precluded producers from earning a fair profit as did depressed prices. The prevention of both types of waste—depressed prices and overdrilling—was enormously controversial. Antipathy to market demand prorationing arose from its clear relationship to outright price fixing in aid of an industry already notorious for monopolistic practices.

Four themes dominated the long days and nights of testimony. The dominant theme was the threatened monopoly of Texas crude oil by a few major oil companies.⁶⁰ In probing for the reasons that crude oil sold at ten cents per barrel, the lawmakers heard much evidence that this price resulted from a conspiracy of

54. *Id.* at 150.

55. Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 497.

56. WEAVER, *UNITIZATION*, *supra* note 4, at 56.

57. *Id.* at 39.

58. *Id.* at 40.

59. *Id.*

60. WEAVER, *UNITIZATION*, *supra* note 4, at 40-42.

the majors to drive the independents out of business. Many witnesses testified that the vertically integrated majors could drive the price of crude oil down and lose profits in their production operations, but still maintain overall corporate profitability by keeping prices high in their pipeline and refining operations where they possessed substantial monopoly power. The facts showed that the majors did control more than 90% of the pipelines in the United States.⁶¹ Many independents testified that this pipeline power was used to drive them out of business by forcing them to sell their leases to the majors at cut-rate bargains.⁶²

The advocates of market demand prorationing were largely the major oil companies. They strove to convince the lawmakers that the ten-cent price was due to free market forces and the Rule of Capture, not monopoly.⁶³ They argued that the deepening recession had lowered demand and the East Texas field had flooded the market with supply. The advocates tried to establish that market demand prorationing was essential to prevent physical waste and that it would benefit all Texans, including independents by restoring higher prices. The argument that market demand prorationing was needed to prevent physical waste rang hollow because the evidence showed so clearly that the prorationing orders were not based on scientific factors related to conservation, but on market conditions.⁶⁴ Indeed in the midst of the hearing, a federal district court enjoined the Commission from enforcing its prorationing order in East Texas because the evidence that prorationing was being used primarily as a price-raising device was "so known to every man, that this court could fairly have taken judicial cognizance" of the fact.⁶⁵

A second recurring theme of the hearing was the Railroad Commission's incompetence and inability to understand, much less regulate and enforce, the complexities of oil and gas production.⁶⁶ The oil fields were basically regulated by industry committees dominated by the major oil companies.⁶⁷ The Commission's prorationing orders were enforced by "umpires" who were elected by the industry's Central Prorationing Committee and who were

61. *Id.* at 41.

62. *Id.*

63. WEAVER, UNITIZATION, *supra* note 4, at 42.

64. *Id.* at 42.

65. *MacMillan v. Railroad Comm'n of Tex.*, 51 F.2d 400 (W.D. Tex. 1931), *rev'd per curiam and remanded*, 287 U.S. 576 (1932).

66. WEAVER, UNITIZATION, *supra* note 4, at 43-44.

67. *Id.*

most often experienced employees of the major oil companies. The Commission's own employees were friends or loyal political supporters of the Commissioners and had no real qualifications for the job. The Railroad Commission did not even employ a petroleum engineer and its chief supervisor of oil and gas was a civil engineer who had once handled railroad matters. The Texas Governor's dedication to representing the public interest was seriously questioned when it was disclosed that he had received \$225,000 in advance royalties from Humble Oil.⁶⁸ The governor was one of the founders of Humble and had been its first president. In sum, no state officials, either at a high or low level, could assure the legislators that the majors would not control the mechanics of market demand prorationing and use it as a monopolist device to destroy competitors.

The clear alternative to market demand prorationing, indeed a superior alternative according to most of the major oil companies, was to unitize each oil field and develop it cooperatively according to the best engineering principles.⁶⁹ Placing each field under a cooperative plan of development, implemented by one operator as the unit manager, would eliminate the frenzied drilling of rival wells and the wide open flush production that wastefully dissipated reservoir pressure. William Farish, president of Humble Oil, testified that unitized pools with proper gas conservation and repressuring could produce oil at one-fourth the cost of competitive drilling and produce 50% more oil in the long run.⁷⁰

However, most independent operators condemned unitization as a conservation device because only a major oil company like Humble had the staff and expertise to be the unit operator and manage the field on behalf of all others. Unitization would continue to allow the majors to control the oil fields. Moreover, the allure of unitization as a method of increasing ultimate recovery and producing more oil was decidedly weak in light of the existing glut of supply. Even the ardent proponents of unitization admitted that its greatest benefit was to lower operating costs.⁷¹ To many lawmakers, this professed benefit was not a virtue. It meant reduced drilling and increased unemployment in the oil fields at a time of national economic depression.

68. *Id.* at 44.

69. *Id.* at 46.

70. *Id.*

71. *Id.*

One more theme consumed lawmakers at these hearings: If the Commission implemented production controls in the field, how would the total allowable field production be distributed among wells and operators? The data showed that as of July 1931, the nineteen largest operators in the field, operators like Humble Oil that had the deep pockets of eastern capitalists to buy up large tracts in the most productive part of the reservoir, had acquired 57% of the acreage in the field, but had produced only 36% of the field's total output.⁷² In contrast, 586 small operators, the independent wildcatters who symbolized the very democratization of the oil industry, had produced 49% of the oil from just 20% of the acreage.⁷³ The independent operator was winning the race under the Rule of Capture. Even had there been no evidence of pipeline monopoly or agency incompetence, a proration order or a unitization agreement that limited the independent producer to a fair share of the field's output, based largely on how much acreage each owned, was a deadly threat. No independent would willingly settle for a fair share when he had gained such an unfair share in the unregulated environment.

In this atmosphere, support for unitization, the premiere conservation tool, was as much a vote in favor of oil monopoly as support for market demand prorationing. The 1931 legislature condemned both at the end of the August 1931 hearings.⁷⁴ Producers opened up the spigots.

Five days later, the governor declared martial law in East Texas and ordered the National Guard into the field to shut down all the wells. The governor's action was based on threats of violence and rioting between the flush producers and the advocates of prorationing. Governor Sterling called another special session of the legislature in 1932, at which time the lawmakers reversed themselves and passed an act specifically authorizing the Railroad Commission to prorate production based on reasonable market demand.⁷⁵ What explains this monumental flipflop in policy? For one, martial law had proved effective in raising the price of crude oil from ten cents to eighty-five cents a barrel.⁷⁶ Secondly, the agency now had a strong and forceful leader in Commissioner Ernest Thompson who was so well respected that it was no longer

72. WEAVER, UNITIZATION, *supra* note 4, at 49.

73. *Id.*

74. *Id.* at 60.

75. *Id.* at 61.

76. *Id.*

seen as a pawn of the major oil companies, but as an agency having the public interest in mind.⁷⁷ Commissioner Thompson promised that the implementation of market demand prorationing would benefit the small producer more than the majors and he was a man whose promise could be believed. Moreover, a new Democratic president, Franklin Roosevelt, had been elected on a platform of active government intervention and price support in aid of all sectors of the depressed economy. Market demand prorationing could be cast as a conservation device to prevent physical waste, while also acting as a price stabilization policy.

Still, peace and order did not come to the East Texas. Hot oil continued to flow. Reservoir pressure in the field dropped precipitously.⁷⁸ Moreover, the federal courts continued to strike down the Railroad Commission's allocation formulas as unreasonable.⁷⁹ The Commission, seeking to enforce its pledge that prorationing would benefit the independent producers, set a simple formula for the field: Every well could produce the same maximum number of barrels per day, regardless of the size of the acreage upon which it was drilled.⁸⁰ Thus, a well on a tiny 1/10-acre town lot could produce twenty barrels of oil per day and a well drilled on a five-acre tract could produce the same twenty barrels. It doesn't take advanced math to realize that this formula is unfair. The owner of the five-acre lot has about fifty times as much oil underneath his tract as the owner of the 1/10 acre lot, but the small-tract owner is allowed to produce just as much as the larger tract owner. Such a formula greatly encourages excessive well drilling on small tracts. The federal courts repeatedly struck down this allocation method as unreasonable and discriminatory.⁸¹ However, it was virtually impossible for the Commission to devise a fair formula and still honor its pledge to the independents that prorationing would redound to their benefit. Any fair formula based on acreage would reduce or eliminate the independent's existing advantage. To the 586 independents in East Texas who had produced 49% of the oil from 20% of the acreage under the Rule of Capture, the only acceptable formula was one which allowed them to continue to drain oil from the larger acreage often held by the majors. Moreover, many independent operators with their shoestring budgets, could

77. *Id.* at 61.

78. ZIMMERMAN, *supra* note 46, at 157.

79. WEAVER, UNITIZATION, *supra* note 4, at 64.

80. *Id.*

81. *Id.* at 53-74.

afford to lease only small tracts of land on the fringes of the fields. Their wells were often marginal wells. Marginal wells cannot, even on their best day, produce more than twenty barrels of oil per day.⁸² If production from these wells were further restricted by market demand prorationing, the wells would be unprofitable to produce. In 1932, Texas lawmakers exempted all marginal wells in the state from market demand prorationing.⁸³ Now, the entire burden of cutbacks in production would fall on the best wells in the state, those most often owned by the major oil companies.

The net effect of the regulatory edifice erected by the Texas legislature and the Railroad Commission in the East Texas field was that all wells ended up receiving about the same allowable.⁸⁴ A well that could produce 20,000 barrels of oil a day was allowed to produce a mere twenty-two barrels per day for only five days a week.⁸⁵ A marginal well that struggled to produce even nineteen barrels of oil a day was allowed to produce without restriction. Small producers with small wells on small acreage could now drain enormous amounts of oil from larger-tract owners in the field, not via the Rule of Capture, but via a gerrybuilt state conservation system. Under such a favorable prorationing system, small tract drilling proceeded apace.

By 1938, 24,000 wells were producing in the East Texas field, most of them completely unnecessary for efficient recovery.⁸⁶ Unnecessary drilling in Texas was estimated to cost more than \$50 million per year, and this was in 1938 dollars.⁸⁷ When a future Arab oil minister, then a student at the University of Texas, first saw the East Texas field, he stated that had it been located in Saudi Arabia, it would have been fully developed by drilling a total of five wells, each producing over 100,000 barrels daily, instead of the thousands of wells pumping out a few barrels a day.⁸⁸ The East Texas prorationing system was both inefficient and unfair, but it fostered thousands of jobs and spread the oil wealth to many thousands of dirt-poor farmers and small town citizens in the Texas populist tradition. In slightly modified form, the "per well" allowable system spread to oil and gas fields throughout Texas,

82. *Id.* at 64.

83. *Id.*

84. WEAVER, UNITIZATION, *supra* note 4, at 66.

85. Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 508 n.40.

86. WEAVER, UNITIZATION, *supra* note 4, at 67.

87. *Id.* at 67 n.147.

88. GOODWYN, *supra* note 38, at 46.

guaranteeing the profitability of small tract drilling and marginal wells.⁸⁹

What was the federal government role in all this? Dozens of times, the lower federal courts found the East Texas prorationing system to be irrational.⁹⁰ However, to FDR and his Secretary of the Interior, Harold Ickes, the single most important issue facing the nation was the Great Depression and establishing a National Industrial Recovery Act (NIRA) to revive the national economy and get people off unemployment and bread lines.⁹¹ Excessive well drilling and the jobs it created were hardly the problem. To assist the states in their price stabilization effort, Congress passed the Connally Hot Oil Act in 1935,⁹² prohibiting the shipment of hot oil (oil produced in violation of state conservation laws) in interstate commerce and authorizing the federal government to enforce the act directly if the states failed to exercise control.⁹³

With the demise of the NIRA, the Cole Committee held lengthy congressional hearings which again focused on the issue of whether states' rights or federal control should predominate in an industry of such crucial importance to the economy and national defense.⁹⁴ Secretary Ickes, an ardent supporter of big government, argued strongly for federal control.⁹⁵ The alternative was an interstate compact among oil producing states that would allow them to cooperate in setting uniform conservation laws. Without such a compact, producers in a renegade state could produce with impunity under the Rule of Capture, dumping excessive amounts of oil onto the market and either triggering a destructive race to the bottom or forcing other states to sacrifice by cutting back their own production to reasonable market demand. In 1935, the Interstate Compact to Conserve Oil and Gas was ratified by six of the largest producing states.⁹⁶ In Congress, one last serious attempt was made to substitute strong federal control over oil production, but state's righters won and Congress approved the compact.⁹⁷ Maximizing the efficient production of oil in this country

89. WEAVER, UNITIZATION, *supra* note 4, at 133.

90. *Id.* at 53-74.

91. GOODWYN, *supra* note 38, at 48-50.

92. WEAVER, UNITIZATION, *supra* note 4, at 67 n.145.

93. *See generally* ZIMMERMAN, *supra* note 46, at 201-13 (discussing history of the federal role during this era).

94. *Id.* at 206.

95. *Id.*

96. ZIMMERMAN, *supra* note 46, at 207.

97. *Id.*

would stay in the hands of state governments. By 1955, thirty oil and gas producing states were members of the compact.⁹⁸ Upon becoming a member, a state assumed the "moral responsibility" to enact and enforce laws to prevent the physical waste of petroleum and to cooperate with other states for effective conservation.⁹⁹

There was one more avenue to pursue to try and rid Texas of its home-grown conservation system that aimed as much at raising prices and protecting independent operators, small tract drilling and marginal wells as it did at encouraging efficient drilling and production—the federal judiciary. Rowan and Nichols, one of the oil operators who was being so badly drained by all the marginal wells in the East Texas field, headed for these courts. Both the district court¹⁰⁰ and the Fifth Circuit Court of Appeals¹⁰¹ held that the East Texas allowable system made no Constitutional sense. However, at the U.S. Supreme Court level, Rowan and Nichols faced the forceful and persuasive Justice Felix Frankfurter. President Roosevelt had selected this young judge as a likely candidate to uphold the New Deal legislation, which aimed at raising prices and making industry profitable again.¹⁰² In 1940, Justice Frankfurter (and five brethren) upheld the prorationing regime used in the East Texas field, thus cementing the Texas independents' regulatory advantage which encouraged so much wasteful drilling and such inequitable drainage patterns.¹⁰³ The Marginal Well Act and the East Texas allocation formula were held to be rational because if these small wells were restricted further, it might be unprofitable to operate them. Justice Frankfurter wrote: "Small producers have investments in existing wells with low capacities, and these wells need a minimum daily production sufficient to justify their enterprise."¹⁰⁴ The "total well-being" of society demanded that these wells be kept alive.¹⁰⁵

Viewed in this light, Justice Frankfurter's opinion sealed the fate of compulsory pooling and unitization in Texas for decades to

98. *Id.*

99. *Id.* at 207-208.

100. *Rowan & Nichols Oil Co. v. Railroad Comm'n of Tex.*, 28 F. Supp. 131 (D. Tex. 1939).

101. *Railroad Comm'n of Tex. v. Rowan & Nichols Oil Co.*, 107 F.2d 70 (5th Cir. 1939).

102. Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 506.

103. *See Railroad Comm'n of Tex. v. Rowan & Nichols Oil Co.*, 310 U.S. 573 (1940), *modified*, 311 U.S. 570 (1941).

104. 311 U.S. 570, 575.

105. *Id.*

come. Had the Court instead ruled that the East Texas prorationing system was wasteful and confiscatory, existing Texas laws probably would have had to change to pass judicial muster. Compulsory pooling or unitization legislation would probably have been enacted. Instead, the U.S. Supreme Court treated the existing state conservation framework as if it were immutable, and it became so. Unnecessary well drilling became a way of life in Texas.

Not that any elected official in Texas has ever seen an unnecessary well. Every well means jobs—not just for oil scouts, roustabouts and oilfield equipment and services suppliers, but jobs in homebuilding in oilfield boom towns, in school districts whose coffers filled with local property taxes from the underground wealth, and in retail shops, pick-up truck dealers, and Dairy Queens scattered all over Texas.

With market demand prorationing firmly in place in Texas and most of the other major oil producing states, oil prices stabilized at about three dollars a barrel for almost twenty-five years through the 1950s and 1960s.¹⁰⁶ The Interstate Compact Commission operated as a loose cartel, adjusting state allowables to assure that newly discovered fields did not flood the market with enough oil to decrease this price. Good wells in Texas that could have produced thousands of barrels of oil a day without creating physical waste were restricted to one-third of their capacity.¹⁰⁷ Of course, by restricting field production this radically, the Texas system did prevent the premature dissipation of reservoir pressure, thus allowing ultimate recovery rates of 30% or more of the oil in Texas fields,¹⁰⁸ a far superior result to Spindletop's 5%. But the Texas independent was being nurtured in a greenhouse of inefficient drilling on small, nonunitized tracts. When cheaper foreign crude from the massive fields in the Mideast came to market, the industry could not compete, despite attempts by Congress to impose tariffs and import quotas against foreign oil and to grant tax subsidies, such as percentage depletion, to the domestic industry.¹⁰⁹ Big fields were harder and harder to find in the U.S., and required deeper and more costly drilling.¹¹⁰ While market demand prorationing could hold prices at three dollars per barrel,

106. WEAVER, UNITIZATION, *supra* note 4, at 98-99.

107. *Id.*

108. A DEPENDENT NATION, *supra* note 3, at 2.

109. WEAVER, UNITIZATION, *supra* note 4, at 99.

110. *Id.*

the political might of eastern consumers and their senators would not allow the Interstate Compact states to restrict production further in an attempt to boost domestic prices above this level.¹¹¹ By the 1960s, many independent producers were dropping out of the industry, unable to make a profit in their high-cost, low return industry. As petroleum demand increased in the U.S., and drilling activity decreased, Texas and other producing states raised allowables in existing fields. Wells that had once operated at 37% market demand factors now were allowed to produce at 100% market demand as long as the ultimate physical recovery of oil from the field was unaffected. By 1973, Texas' oil fields were producing at 100% market demand.¹¹² All incremental barrels of oil demanded by gas-guzzling U.S. consumers would have to come from the Mideast. The United States was now at the mercy of foreign producers.

Some of you in the audience are familiar with the rest of the story, having lived through it. In 1973, Arab producers, angry at U.S. support of Israel, embargoed much of the western world's supplies of oil.¹¹³ Oil prices quadrupled almost overnight, and then doubled again in 1978 with the Iranian revolution, reaching almost forty dollars per barrel.¹¹⁴ The U.S. economy nosedived into recession, and the federal government passed a huge body of law (much of it drafted by Pace's very own Dick Ottinger) to cope with the energy crisis characterized as the Moral Equivalent of War.¹¹⁵ Consumers and industry reacted to the higher prices by conserving energy in unexpectedly high amounts.¹¹⁶ Energy producers responded to the higher prices by increasing output all over the world. Houston zoomed to the top of the charts of the nation's fastest growing metropolitan areas as the energy industry flocked to this inviting city.

Then came the crash. The market worked all too well. Increasing supplies hit reduced demand, and oil and gas prices dropped precipitously starting in 1981, only eight short years after the embargo.¹¹⁷ Houston's economy tumbled; its real estate markets cratered. Throughout the 1980s and much of the 1990s, fall-

111. *Id.*

112. *Id.* at 117.

113. A DEPENDENT NATION, *supra* note 3, at 23.

114. *Id.* at 3.

115. Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 520.

116. FRED BOSSELMAN ET AL., *ENERGY, ECONOMICS & THE ENVIRONMENT: CASES & MATERIALS* 1098-99 (Foundation Press 2000).

117. *Id.* at 304, 436-37.

ing energy prices led to massive layoffs in the petroleum industry.¹¹⁸ Over half a million workers left the industry.¹¹⁹ Hundreds of independent operators whose dreams depended on thirty dollars per barrel of oil went bankrupt. Thousands of marginal wells were idled, unable to compete in a global marketplace.¹²⁰ The high-cost, hothouse industry, so assiduously courted by Texas's officials, faced a sobering future.

IV. The Feds Are Coming, The Feds are Coming: War and Pollution—Federal Intervention after the Interstate Oil Compact

Wars have done wonders for the conservation of oil and gas in Texas, especially when mingled with a little tort law.¹²¹ As World War II began, production from the East Texas field had become an environmental nightmare. Every barrel of oil produced from the field was accompanied by many more barrels of salt water. The operators discharged the salt water and chlorides from their operations into the river, rendering the water unfit for agricultural, domestic or industrial use. All nearby fish and aquatic life were already extinct. Yet, production from the East Texas field would soon be desperately needed to feed the Big Inch pipeline, being built to carry crude oil to the East Coast, safe from German U-boats that attacked our oil tankers.¹²² In 1942, in *Goldsmith & Powell v. State*, the Texas Attorney General sued operators in the East Texas field to enjoin them from polluting the waters of the Neches River.¹²³ The court accurately foresaw that existing pollution would only become worse: "It is evident that as the oil reserve in the field is depleted, the production of salt water will increase, finally resulting in 90 or 100% salt water."¹²⁴ The defendants' operations were found to be a public nuisance and the court perpetually enjoined them from allowing injurious substances to flow from tanks and pits into the river.¹²⁵

118. *Id.* at 1105.

119. A DEPENDENT NATION, *supra* note 3, at 8.

120. INTERSTATE OIL & GAS COMPACT COMM'N, PRODUCE OR PLUG? THE DILEMMA OVER THE NATION'S IDLE OIL & NATURAL GAS WELLS, A STUDY BY THE INTERSTATE OIL AND GAS COMM'N 1 (2000) [hereinafter PRODUCE OR PLUG?].

121. Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 512-13, 518-22.

122. GOODWYN, *supra* note 38, at 71.

123. 159 S.W.2d 534 (Tex. Civ. App. 1942).

124. *Id.* at 535.

125. *Id.*

This opinion forced the Railroad Commission into action. The small operators in the field could not afford to drill their own injection wells and install costly treatment equipment to dispose of salt water in a non-polluting manner, as some of the majors were doing. The Commission adopted a bonus allowable rule for re-injecting salt water into the East Texas reservoir. For every fifty barrels of salt water reinjected, an operator could produce an additional barrel of oil.¹²⁶ The rule assured that the costs of building and operating a fieldwide salt water injection system would be recovered through the "carrot" of additional oil allowables. The Commission varied the amount of bonus oil granted to just equal the cost of the fieldwide injection program.¹²⁷ The reinjection of this salt water also worked to maintain reservoir pressure in the field. Cooperative pressure maintenance through a fieldwide injection program had come to East Texas—that bastion of aggressive individualism—but it took a war and a tort.

During World War II, the Petroleum Administration for War (PAW) tamed much unnecessary well drilling in Texas by refusing to allocate scarce steel supplies to wells drilled on small tracts.¹²⁸ The PAW also insisted that gas field operators maximize the recovery of liquids essential to the war effort.¹²⁹ This insistence pushed the Railroad Commission into ordering repressuring and cycling of gas in several large condensate gas fields, despite its lack of any statutory power to do so.¹³⁰ After the war, the hovering presence of the Federal Power Commission, concerned with the billions of cubic feet of casinghead gas being flared in Texas oil fields, helped the Commission justify its strong efforts to prevent flaring and other wasteful practices in the industry.¹³¹ Under the leadership of a remarkable Commissioner, William Murray, a petroleum engineer by training, the Commission boldly ordered shut-downs for hundreds of wells in large fields throughout Texas until the operators agreed to either reinject the gas into the reservoir or to find a market for it.¹³² The shutdowns were applied across the field to all operators, majors and independents alike, in fields where Commissioner Murray saw waste occurring. Operators had two choices: remain shut-in, with a zero allowable and no

126. Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 513.

127. *Id.*

128. WEAVER, *UNITIZATION*, *supra* note 4, at 141.

129. Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 518-20.

130. *Id.*

131. *Id.*

132. *Id.*

cash flow; or join with fellow operators in the field to devise a cooperative “voluntary” agreement that unitized the field and prevented waste.¹³³

Commissioner Murray never advocated compulsory unitization, knowing that neither of his fellow Commissioners would ever go along with it because of their pledge to independent operators. Spokesmen for these independent operators characterized such a statute as “a substitution of force for persuasion . . . another fetter on the step of Freedom, another move down the road towards confiscation, tyranny, and unmorality [whose advocates are] socialists, bureaucrats, self-seeking politicians, fuzzy thinkers of the left, do-gooders, and impractical denizens of ivory towers.”¹³⁴ But Commissioner Murray’s artful use of no-waste orders to encourage what he called “permissive unitization” in Texas’ largest oil fields undoubtedly forestalled federal preemption of Texas’ second-best conservation framework.

Instability in the Mideast has also played a significant role in encouraging change in Texas conservation regulation. During the Arab-Israeli War of 1967, the Railroad Commission adopted a state-wide lease-allowable rule to help make up the deficit in crude supplies caused by the Arab oil exporter’s suspension of crude shipments to the United States.¹³⁵ A lease-allowable system lets operators shut in their poor wells and transfer production allowables from the poor wells (which bring up much water or gas with the oil) to good wells on the same lease without suffering a loss in allowables because fewer wells are now being used. The right to transfer allowables from poor wells to good wells is of greater value to operators with large tracts of land and many wells than to small-tract producers who have only a well or two on a few acres. Before the 1967 crisis, the Commission had shied away from adopting allowable transfers because of their differential impact.¹³⁶ However, when the Commission raised the Texas market demand factor from 34% to 54% due to the Arab embargo, it wanted to avoid the inefficiencies of producing oil from wells that also brought up large amounts of water or unmarketed

133. WEAVER, UNITIZATION, *supra* note 4, at 148.

134. Donohue, *Report of TIPRO Advisory Committee to Interstate Oil Compact Commission*, OIL & GAS COMPACT BULL., Dec. 1956 at 73 (quoted in L. Proctor Thomas, *Prospects for Compulsory Fieldwide Unitization in Texas*, 44 TEX. L. REV. 510, 524 (1966)).

135. WEAVER, UNITIZATION, *supra* note 4, at 169.

136. *Id.* at 169-70.

gas.¹³⁷ Very real savings in operating costs were achieved with this system, in addition to greater conservation of reservoir pressure.

Federal pollution laws have also played a significant role in causing Railroad Commissioners to push operators into more efficient and less polluting practices. In 1967, at the same time that the Commission installed the lease-allowable system, federal officials were putting enormous pressure on the oil industry to eliminate salt water storage pits on the surface of land.¹³⁸ The more expensive alternative to surface pits is reinjection of the produced brine. The best way to reduce the cost of reinjection is never to bring the brine up, so the federal statutes made the lease-allowable transfer rules of 1967-68 politically more palatable to enact. The Commissioners could always say the feds made them do it.

In addition, because of the feds, the Railroad Commission in 1967 passed its first rule banning surface pits for saltwater storage.¹³⁹ The task of preventing pollution from oilfield wastes conflicted with the agency's ingrained philosophy of promoting and nurturing the oil industry of the state, especially the independents. Not surprisingly then, the rule allowed exceptions for producers who could prove that their operations would be uneconomic if they could not use surface pits or flush their wastes into streams. The liberal granting of exceptions and lax enforcement of the no-pit rule brought heavy criticism of the Commission and the oil industry.¹⁴⁰ Even the Commissioners admitted that their anti-pollution efforts were progressing only "inch by inch."¹⁴¹ The Commission was caught in desperate straits, forced to choose between shutting down small producers or abdicating their pollution authority to the federal government or another state agency. One Commissioner exhorted the industry to do a better job or face the possibility that the public interest would lead the Texas legislature to enact a law requiring compulsory cooperative saltwater disposal systems.¹⁴² The mere mention of the word "compulsory," even when phrased only as an anticipatory suggestion, shows the depth of the Commission's quandary.

137. *Id.*

138. *WEAVER, UNITIZATION*, *supra* note 4, at 170-71.

139. *Id.*

140. *Id.*

141. *Id.* at 170-71, n. 126.

142. *Id.* at 171.

Still, not all Mideastern crises have commanded a federal reaction sufficient to override parochial state interests. During the Suez Canal crisis in 1956, the demand for Texas crude oil soared, especially for Gulf Coast crude which is easy to transport to other parts of the U.S.¹⁴³ The Railroad Commission refused to increase the allowables of Gulf Coast fields above that of fields in West Texas which were operating at the maximum capacity of their pipeline connections.¹⁴⁴ The elected Commissioners truly viewed themselves as managers of the entire Texas economy. The federal government did not unseat these state officials from their positions of power, even when they rendered the national interest subservient to that of Texas. We will return to the saga of war and oil to discuss Desert Storm, the 1990 Persian Gulf War, after reviewing the legacy of Texas's system of conservation.

V. The Legacy

The failure of the federal government to endorse compulsory unitization as a national goal, and instead to allow states and the Interstate Oil Compact Commission to develop second-best alternatives to conservation, has left a predictable legacy.

First, we are a nation of marginal wells, many of which have become idle and orphaned. Abandoned wells that are not properly plugged pose serious hazards to the public.¹⁴⁵ Persons may step in or fall down the holes. Escaping gas, hydrogen sulfide, and arsenic can ignite, poison the air, destroy the surface of the land, and cause personal injuries and death. Salt water and other deleterious fluids can migrate from an abandoned well bore into freshwater reservoirs that supply drinking and irrigation water for the community.¹⁴⁶

Of the 550,000 producing oil wells in the U.S. in 1998, some 419,000 (or 76%) produce an average of two barrels per well per day.¹⁴⁷ Moreover, an astounding number of additional wells, approximately 343,000, are idle, and therefore, not producing at

143. WEAVER, UNITIZATION, *supra* note 4, at 172.

144. *Id.*

145. ERNEST E. SMITH & JACQUELINE LANG WEAVER, 3 TEXAS LAW OF OIL AND GAS 14-10 (2d. ed. 2000).

146. New York passed the first statute requiring well plugging to protect groundwater in 1895. See PRODUCE OR PLUG?, *supra* note 120, at 93. In 1934, the Railroad Commission issued plugging rules to protect producing formations, not groundwater. The protection of groundwater was not required until 1957. *Id.*

147. A DEPENDENT NATION, *supra* note 3, at 4.

all.¹⁴⁸ Of these 343,000 idle wells, only about half, approximately 49%, are idle with state approval.¹⁴⁹ Another 34% lack state approval, but the operator is known and some degree of financial security exists to plug the well.¹⁵⁰ This still leaves about 57,000 orphan wells—idle wells which have no known operator or an insolvent operator, and which have not been properly plugged and abandoned under state conservation laws.¹⁵¹ It is these orphan wells which pose the greatest danger to the environment.

Texas is at the head of this list of marginal, idle and orphan wells. In 1999, the state had 120,000 stripper oil wells out of the 420,000 total in the U.S., far ahead of any other state.¹⁵² The state has an astounding 115,557 idle wells, 29% of all wells in Texas.¹⁵³ Most of these wells have been idle for more than 10 years¹⁵⁴ and it is unlikely that they will ever be brought back into production. While 74,000 of these are idle with state approval, at least 16,000 are idle without state approval and with no known or solvent operator.¹⁵⁵ Another 26,000 are idle without state approval, but with a known and solvent operator who may, or may not, undertake proper plugging techniques.¹⁵⁶

What are the energy and environmental implications of this large number of idle wells? In its report aptly titled "Produce or Plug?: The Dilemma over the Nation's Idle Oil and Natural Gas Wells," the Interstate Oil and Gas Compact Commission, or IOGCC, notes that many idle wells may be capable of returning to production or being used as injection wells to repressure reservoirs in a secondary recovery operation that will sweep up additional oil left behind by inefficient primary production practices.¹⁵⁷ Plugging all idle wells could result in premature abandonment of remaining oil and gas resources because regaining access to an abandoned reservoir by drilling new wells is too expensive. Nonetheless, even with the IOGCC's most optimistic projections that every single idle oil well could be brought into production to produce one barrel of oil per day, the oil production po-

148. PRODUCE OR PLUG?, *supra* note 120, at 1.

149. *Id.* at 2.

150. *Id.*

151. *Id.* at 1.

152. *Id.* at 84.

153. *Id.*

154. PRODUCE OR PLUG?, *supra* note 120, at 84.

155. *Id.* at 87.

156. *Id.*

157. *Id.* at 91-94.

tential represented by state-approved idle wells would add only about 1% to domestic production.¹⁵⁸ Balanced against this potential is the very real risk that these idle wells are not adequately monitored to guard against pollution and public safety risks and will join the swelling ranks of orphaned and unapproved wells.

The second part of the legacy are the permanent scars left on the Texas plains from the indiscriminate dumping of millions of gallons of salt water on the countryside. As an example, the Santa Rita No. 1 well, the first well to strike oil in West Texas, has been moved from the little town of Texon to a prominent place in the state capital of Austin for all to admire.¹⁵⁹ Left behind in Texon are 7000 acres of barren land, turned chalk white by decades of dumping salt water.¹⁶⁰ The well produced 200 million barrels of salt water until it was plugged in 1990.¹⁶¹ Until the 1960s, the salt water was simply poured onto the surface where it ran into ponds several miles to the north. In 1989, the University Lands Office launched an experimental project to reverse the damage by removing the salt from the soil and underground water pools. The contamination was so bad that it caused deflocculation of the soil, thereby causing the soil to lose its integrity and become like talcum powder. The project installed more than twenty-three miles of underground drainage piping and sumps and pumps to speed up the process of leaching the salt through fresh water.¹⁶² The result was clear: the process of remediation was too expensive to be continued. Commenting on the project's failure, a University of Texas geologist declared: "The Earth is a strong old gal. I suspect sometime in the future, . . . it will heal itself up, but it may be 300 years."¹⁶³

Third, the lack of compulsory unitization has come back to haunt the Texas independent producer in the last two decades when foreign competition can undersell the high-cost marginal wells, so carefully nurtured by the market demand prorationing system and state conservation agencies. As the major oil companies left the domestic onshore industry to hunt for large fields on other continents, in Alaska, and in deep water on the Outer Continental Shelf, the independents in West Texas sought to perform

158. *Id.* at 92.

159. Russell Gold, *Scar Remains from Oil Triumph*, SAN ANTONIO EXPRESS-NEWS, Sept. 26, 1999 at A17.

160. *Id.*

161. *Id.*

162. *Id.*

163. *Id.*

secondary recovery operations in fields where suboptimal primary production methods had left significant amounts of oil in the ground. Secondary recovery repressurizes the oil fields by the massive injection of salt water, fresh water, or carbon dioxide into the reservoir to scrub and sweep up more oil.¹⁶⁴ Without a compulsory unitization process, however, it was impossible to secure agreement on an efficient plan for the entire reservoir.¹⁶⁵ Secondary recovery poses the problem of the "free rider," a variant of the Rule of Capture's Tragedy of the Commons. The free rider will refuse to pay his fair share of the repressuring costs and instead will sit back and enjoy the fruits of the labor of the other hardworking operators who have no way of preventing the repressurized oil from crossing the lease boundary onto the free rider's property.

Even without free riders, securing 100% voluntary agreement about each tract's fair share is well nigh impossible. In a Wyoming case, the operators met for three years, trying to develop a unitization formula for fair shares that would reach the minimum 75% required before the Wyoming commission could force the remaining 25% of the acreage into the unit.¹⁶⁶ The eighty-one different operators considered seventy-one formulas without success.¹⁶⁷ They then used computers to analyze voting patterns and "split the baby" by using eleven different factors in the formula for allocation production proceeds. This formula achieved 75.89% approval.¹⁶⁸ One unhappy operator appealed the commission order to unitize on the basis that his private property rights were not adequately protected. The Wyoming Supreme Court wrote: "Appellant seems to expect perfection. Justice was accomplished here, as much as could be under the circumstances. This litigation should end."¹⁶⁹

By the 1990s, producers in West Texas were casting envious eyes upon their fellow operators in New Mexico, a state which shared much of the same geology, but which had had compulsory unitization for many years as an aid to enhance production from its oil fields. Some of the larger Texas independents experienced the time, expense, and ultimate failure, of trying to convince

164. WEAVER, UNITIZATION, *supra* note 4, at 16.

165. *Id.* at 24-25, 30.

166. *Gilmore v. Oil & Gas Conservation Comm'n*, 642 P.2d 773 (Wyo. 1982).

167. *Id.* at 775.

168. *Id.*

169. *Id.* at 781.

scores of different owners of the merits of a proposed secondary recovery project and then of negotiating a participation formula with these many owners. In 1996, a group of producers from the Permian Basin prepared a report showing that if Texas had the proportional number of unitized projects as New Mexico had, Texas could potentially produce more than one billion additional barrels of oil, bringing an estimated \$28 billion worth of wellhead revenue to the state of Texas and the accompanying benefits of increased severance taxes and jobs.¹⁷⁰ Two years later, TIPRO, the leading voice of the Texas independent producer, took up the cause of compulsory unitization and drafted and supported a consensus bill, felicitously named the "Texas Enhanced Oil Recovery Unitization Act" to avoid the use of the word compulsory.¹⁷¹ However, the bill never reached the floor of the legislature. The powerful Bass Brothers of Fort Worth launched a ferocious political campaign against the bill, stressing the primacy of private property rights over any form of state compulsion.¹⁷² The bill fell victim to the diehard private property rights movement. No Railroad Commissioner offered a single word of support for the public interest, state or federal, in achieving the maximum recovery of oil from Texas fields:

Instead of endorsing compulsory unitization as a method of securing additional oil and gas production, the Texas legislature embarked on a veritable binge of incentive programs to keep marginal wells and their producers alive during the low oil prices of the 1990s. For example, if operators brought inactive wells back into production, the oil and gas produced were exempted from state severance taxes for ten years.¹⁷³

In addition, to prevent the premature abandonment of marginal wells in times of depressed prices, the legislature also extended the period of time to plug a nonproducing well from ninety days to one year, while also allowing unlimited extensions of the

170. Jacqueline Lang Weaver, *The 1998-99 Proposed Compulsory Unitization Act*, OIL, GAS & MINERAL LAW SEC. (State Bar of Tex., 16th Annual Advanced Oil, Gas & Mineral Law Course, Houston, Tex.), Oct. 8, 1998, at I-1 to I-3 [hereinafter Weaver, *Proposed Compulsory Unitization Act*].

171. *Id.* at I-3.

172. *Id.*

173. INTERSTATE OIL & GAS COMPACT COMM'N, INVESTMENTS IN ENERGY SECURITY 37-43 (1999) [hereinafter INVESTMENTS IN ENERGY SECURITY]. This source contains information on State incentives to promote oil and gas drilling and production, particularly from marginal wells.

plugging requirement with the payment of a small annual fee.¹⁷⁴ The liberal extensions were granted without requiring an annual test to show that the wells did not pose a pollution threat. The result was predictable: a steady increase in the number of unplugged and orphan wells which would require plugging at state expense. Texas was trading an energy crisis (albeit one due to too low prices) for an environmental one, and exchanging one economic problem for another. By the year 2000, the data showed that the number of Texas wells not in compliance with the plugging rules had grown from 21,000 wells in 1992 to 25,672 wells in 1999, while the number of inactive wells increased from 64,000 to 102,000 during the same time period.¹⁷⁵ History predicted that the majority of these 25,672 wells would be orphaned to the state, while the State's clean-up fund could only plug about 1100 wells annually.¹⁷⁶ With plugging costs averaging about \$4,500 per well, the state of Texas was being saddled with an enormously expensive backlog of abandoned wells.¹⁷⁷ The program had become, in the words of one outspoken Railroad Commissioner, "a government managed bailout program for delinquent operators."¹⁷⁸

So serious had the problem become that TIPRO put the following two items on its lobbying agenda for the year 2000 legislative session:

—Update the Railroad Commission's Environmental Program as Appropriate to Improve Public Trust in the Commission; [and]

—Oppose Efforts to Transfer Railroad Commission Environmental Responsibilities to Other State or Federal Agencies.¹⁷⁹

TIPRO then developed a plan to improve the Commission's Oil Field Clean-Up Fund efforts by increasing the annual revenue in the fund from \$12 million to \$20 million through increased fees and charges on Texas operators.¹⁸⁰ TIPRO also supported legisla-

174. SMITH & WEAVER, *supra* note 145, at 14-19.

175. *Id.* at 14-20.

176. *See id.*

177. RAILROAD COMM'N OF TEXAS, WELL PLUGGING PRIMER 5 (2000).

178. Tony Garza, *Energy Producers Abuse Abandoned Well Program*, HOUS. BUS. J., Apr. 14, 2000, available at <http://houston.bizjournals.com/houston/stories/2000/04/17/editorial4.html> (last visited March 28, 2002).

179. TIPRO, available at <http://tipro.org/projects> (last visited March 8, 2002). *See also* TIPRO, 77TH LEGISLATIVE WRAP UP, available at <http://tipro.org/77wrapup> (last visited March 8, 2002).

180. *Id.*

tion that strengthened bonding requirements on operators so that fewer wells would be required to be plugged at state expense.¹⁸¹ And for the first time, TIPRO lobbied to increase the agency's appropriations so that Commission staffers, particularly engineers and scientists, would not leave the agency for higher pay at other state agencies, notably the Texas Natural Resource Conservation Commission.¹⁸²

This remarkable, and quite successful, lobbying effort by TIPRO on behalf of the Railroad Commission is at least partly explained by the arrival on the scene of a new nongovernmental organization, the Texas Land and Mineral Owners Association, whose founding member is from the fabled million-acre King Ranch empire in South Texas.¹⁸³ Texas is still the land of cattle ranches so colorfully portrayed in many movies and TV shows. Many Texas governors, such as Dolph Briscoe, and other state and business leaders, come from historic families that settled in Texas in its early years on big ranches covering thousands of acres.¹⁸⁴ Many once welcomed the oil companies on their lands. But the descendants of these rich and powerful ranching families are now coping with the legacy of pollution left by thousands of contaminated well sites dotting their lands. As oil production has declined, their lands have become more valuable for hunting leases and recreation.¹⁸⁵ These large ranchers, whose grassroots efforts since 1999 now claim 1,400 members (both large and small), are a formidable opponent on the legislative scene in Austin.¹⁸⁶ This group lobbied for an even greater increase in the Oil Field Clean-Up Fund to be paid by the industry and for immediate mandatory bonding of all Texas operators.¹⁸⁷ TIPRO could not deny that bad actors in the industry were putting the Texas environment at risk by using lax Commission plugging policies. These bad actors were giving the oil industry and the Railroad Commission a bad reputation, and were imposing higher costs on the majority of operators who were good actors. For what may be a historic first, home-

181. *Id.*

182. *Id.*

183. Jim Yardley, *In a Changed Texas, Rangers Battle Oilmen*, N.Y. TIMES, May 29, 2001, at A1.

184. *Id.*

185. *Id.*

186. TEXAS LAND AND MINERAL OWNERS ASS'N, 77TH TEXAS LEGISLATURE, LEGISLATIVE MATERIAL (2000).

187. *Id.*

grown grassroots pressure more than federal pressure, is cleaning up the Texas oilfields.

VI. National Energy Policy through the Eyes of Producing State Governors

President George W. Bush moved from being an independent oilman to the Governor of Texas. What perspective on national energy policy might derive from this elected position? The best way to answer this question is to look at the comprehensive national energy policy developed by the governors of oil and gas states in the year 2000 through the Interstate Oil and Gas Compact Commission. This document, titled "A Dependent Nation: How Federal Oil and Natural Gas Policy is Eroding America's Economic Independence"¹⁸⁸ was completed on the eve of Governor Bush's ascendancy to the Presidency. The IOGCC defines its mission as conserving domestic oil and gas through orderly development and maximizing efficient production while protecting health and the environment.¹⁸⁹ How do the governors of the producing states recommend balancing energy and environmental goals in a National Energy Plan?

The IOGCC first frames its energy policy in a rather remarkable way. In its opening section, the IOGCC declares that "[t]he domestic industry maintained the distinction as the world's most efficient conservator of oil and natural gas. The United States is the only country that captures significant quantities of oil and natural gas from marginally economic wells."¹⁹⁰ The report continues:

It is a wonder U.S. producers can compete at all, for nowhere else in the world can operators maintain economic production from a well producing only two barrels per day. That America has been able to continue to produce its maturing resource at such rates is a testimony not only to the oil industry's hard work and ingenuity, but also to the untiring efforts of groups such as the IOGCC.¹⁹¹

As its title suggests, the IOGCC considers imported oil a serious economic threat to the U.S. economy because it often comes from unstable countries which have in the past imposed embar-

188. A DEPENDENT NATION, *supra* note 3.

189. *Id.* at Preface.

190. *Id.* at 4.

191. *Id.* at 5.

goes on oil exports to the U.S.¹⁹² The IOGCC's first recommendation for a national energy policy calls on the federal government to determine the true costs to the American public of imported oil, including the military expense of defending friendly Mideastern oil exporters such as Kuwait and Saudi Arabia against aggression, as we did in Desert Storm in 1990-91 under the Senior Bush's presidency.¹⁹³ Let's take a look then, at the actions of the Railroad Commission during the Persian Gulf War.

Shortly after Iraq invaded Kuwait in early August 1990, the Railroad Commission came under considerable pressure from the Department of Energy to adopt an emergency rule allowing all wells in Texas to produce at 100% of their allowable capacity, provided that no well was produced in a manner that created physical waste.¹⁹⁴ The increased Texas production would counter possible shortages in oil supplies resulting from the worldwide embargo against Iraqi and Kuwaiti crude oil. Only two fields in Texas could potentially meet the challenge of producing more oil: The Austin Chalk field, where operators had recently drilled horizontal wells with great success, and the East Texas field. The Commission issued a rule authorizing the 100% allowables in all fields except the East Texas field where the wells remained prorated at 86% of their allowables.¹⁹⁵ When challenged in court by some of the larger operators in the field who had long desired to produce at the 100% factor, the Commission attempted to justify its refusal on the basis that producing at a higher rate in East Texas would cause physical waste.¹⁹⁶ However, a state district court judge found that there was no credible evidence to support the 86% factor for East Texas.¹⁹⁷ On appeal, the Railroad Commission did not even assert that the 86% factor was primarily necessary to prevent waste.¹⁹⁸ Instead, the agency argued that the 86% rule was necessary to protect correlative rights, that is, the fair share allocations of the owners in the field.

Whose private property rights would be hurt by the rise to 100%? The rights of all those marginal well owners that Justice Frankfurter had so worried about in *Railroad Commission of*

192. *Id.* at 26.

193. *Id.* at 8-9.

194. Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 529.

195. *Id.* at 528-30.

196. *Id.* at 527.

197. *Id.* at 526.

198. *Id.*

*Texas v. Rowan & Nichols Oil Co.*¹⁹⁹ The East Texas field rule still operated under the formula the U.S. Supreme Court had approved in 1940. One major oil company, Amoco (now merged with BP) presented testimony that in stark terms illustrated the effect of the Marginal Well Act on the distribution of the riches in the East Texas field.²⁰⁰ Marginal wells, not capable of producing twenty barrels of oil per day, were permitted to produce at 100% of their capacity. Meanwhile, prolific wells that could produce thousands of barrels of oil per day were restricted to 2.3% of their hourly potential.²⁰¹ These prolific wells were then prorated an additional 86%, with the net result that the field's best wells were allowed to produce seventeen barrels of oil per day while marginal wells merrily pumped nineteen or twenty barrels.²⁰² Former Railroad Commissioner, Robert Krueger, a Ph.D. in English, dissented from the agency decision to keep East Texas at the 86% factor. This Commissioner wrote:

Before coming to the Railroad Commission, I understood that any vote regarding the level of production in the East Texas Field would be one of the most controversial I might make. The political attractiveness of keeping the East Texas Field at eighty-six percent was made apparent: . . . [L]arger oil companies are believed to have leased the most desirable and productive tracts, and therefore would benefit most from 100 percent production. Smaller, independent producers have less desirable tracts. They would supposedly benefit from an 86 percent factor.

Political popularity, however, proves a poor guide for decisions on who is allowed to recover his fair share of minerals, or on how to prevent waste of the state's precious mineral resources. . . . [T]he Railroad Commission in my judgment has a responsibility to maximize America's energy production so that we can minimize our reliance on foreign oil. . . . In the interests of patriotism as well as in the interest of public policy, therefore, this field should be produced at 100 percent.²⁰³

More than any other episode in the history of Texas conservation law, this Desert Storm example illustrates the consequences of the failure to heed Henry Doherty's call for a federal compulsory

199. 310 U.S. 573 (1940), *modified*, 311 U.S. 570 (1941).

200. Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 533.

201. *Id.*

202. *Id.*

203. *Id.* at 531.

unitization law. Were the East Texas field unitized, all operators would share proportionally in the increased production at the 100% level. No conflict would exist between the national interest of conservation and the distribution of the field's riches. The love affair that Texas elected officials have for the independent producer and the jobs created by their thousands of marginal wells has bequeathed Texas a weak, and ultimately unpatriotic, conservation system that, contrary to the IOGCC's recent report, did not serve the nation's energy security well (at least until the courts intervened).

Moreover, the IOGCC's call to determine the true costs of imported oil as the first principle of a national energy policy is ultimately premised, not so much on national security grounds, but on the dire consequences to the domestic industry of a global Tragedy of the Commons, resulting in a worldwide race to the bottom in environmental standards. In the IOGCC's own words, the costs of imported oil should include the "massive environmental remediation that will occur in foreign countries with lax or nonexistent oil and gas . . . regulation."²⁰⁴ The report continues that unless all nations adopt the environmental standards applied to the domestic industry, the U.S. industry is severely handicapped by the unevenness of the global playing field. Increasing dependence on imported oil is "poor environmental policy" because it moves production to areas of the world with less stringent standards of environmental performance.²⁰⁵

Yet the IOGCC does not call for a lessening of U.S. standards. Not a word in the document calls for reduced environmental regulation in the U.S. Rather, the IOGCC reiterates its stance that the dedication of the U.S. industry to clean operations has earned the industry the right to greater access to public lands such as the Arctic National Wildlife Refuge (ANWR).²⁰⁶ Indeed, the IOGCC report states that proactive and progressive state regulatory programs have proven that oil exploration and production can coexist with sound environmental protection.²⁰⁷ Certainly in the case of Texas, these progressive programs began only when the force of the federal government was brought to bear on the problems of oil field pollution.

204. A DEPENDENT NATION, *supra* note 3, at 8.

205. *Id.* at 28.

206. *Id.* at 25.

207. *Id.*

VII. The Rule of Capture through the Eyes of a Texas Rancher: Texas Groundwater Law Meets the Federal Endangered Species Act

The same Rule of Capture that has bedeviled the creation of an efficient and fair conservation system in Texas also plagues its underground aquifers. Texas is the only state in the union today that still relies largely on the Rule of Capture to govern this resource which, even more than oil and gas, will determine the state's future growth. Imagine trying to plan your municipal, county or state's future when any landowner in the state has the right to drill wells and pump as much water as he likes for use either on his own land or to ship to distant markets. Over the years, the Rule of Capture has already wreaked havoc on many areas of Texas: it has dried up communal springs that formed oases in the heart of dusty small towns in West Texas;²⁰⁸ threatened small farmers who cannot outpump the wells of large industrialists slaking the thirst of joggers for bottled water in East Texas;²⁰⁹ and prevented any sort of water planning in the most beautiful part of Texas, the central hill country where two of the nation's fastest growing cities, San Antonio and Austin, seemed doomed to the boom and bust cycles of drought and flood—at least until a blind salamander and thousands of catfish rescued them from this fate.

The catfish belonged to Ron Pucek and his Living Waters Artesian Springs, an aquaculture farm built in the middle of the hill country overlying the Edwards Aquifer that was the sole source of water supply for San Antonio.²¹⁰ Mr. Pucek and his investors had drilled what may have been the largest water well in the world—a well thirty inches in diameter capable of producing 40,000 gallons per minute.²¹¹ The torrent of pure, fresh water flowing from this well rushed through a series of raceways that heated it to the perfect temperature for raising a huge crop of catfish. The tremendous water volume passed through the raceways into fishponds, nurturing thousands of catfish, and was then used to flush their

208. *Pecos County Water Control & Improvement Dist. No. 1 v. Williams*, 271 S.W.2d 503, 505 (Tex. App. 1954).

209. *Sipriano v. Great Spring Waters of Am. Inc.*, 1 S.W.3d 75 (Tex. 1999). Great Spring Waters of America bottles Ozarka water.

210. Gregg A. Eckhart, *The Edwards Aquifer Homepage: Ron Pucek's Living Water Catfish Farm*, at <http://www.edwardsaquifer.net/pucek.html> (last visited Jul. 14, 2001).

211. *Id.*

wastes into the Medina River. Under the Rule of Capture, the catfish farm was reportedly using enough water to support 250,000 people—one-fourth the population of the city of San Antonio in March 1991.²¹² Even without the catfish operation, ranching, rice farming, and a burgeoning population were depleting the aquifer except in years of flood.

In May 1991, the citizens of San Antonio voted to abandon the Applewhite Reservoir Project, a dam that would have weaned them off of sole reliance on ground water onto more expensive surface water.²¹³ Two weeks later, the Sierra Club filed a lawsuit in federal court against the Department of the Interior, alleging that overpumping of the Edwards Aquifer violated the federal Endangered Species Act by reducing flows at the San Marcos and Comal Springs where the only colonies of this blind salamander existed.²¹⁴ In short order, the Texas Water Commission, in a strikingly creative maneuver to maintain state control over the situation, declared that the Edwards Aquifer was actually an underground river, subject to appropriative water law rather than the Rule of Capture.²¹⁵ The Texas Attorney General filed suit against the U.S. Fish and Wildlife Service and the Department of Interior charging that the two federal agencies were illegally trying to take control of the Edwards Aquifer and usurp the state's sovereignty.

In November 1992, Judge Lucius Bunton, a larger-than-life West Texan, heard the case in a federal district court in Midland, Texas. Known for his rocket docket, Judge Bunton issued his judgment in *Sierra Club v. Lujan*²¹⁶ in February 1993. His order required protection of Comal and San Marcos Springs with minimum streamflows necessary to ensure the continued existence of the blind salamander.²¹⁷ The judge gave the Texas legislature until May 31, 1993 to come up with a water management plan for the Edwards Aquifer.²¹⁸ One day before the legislative session was to end, the Texas legislature passed a bill establishing the Edwards Aquifer Authority, and Governor Bush signed it into law.²¹⁹

212. *Id.*

213. San Antonio Water System, *Chronology: 1991*, available at http://www.saws.org/who_we_are/chrono/chronol91.html (last visited Mar. 8, 2002).

214. *Id.* at 26.

215. *Id.*

216. No. MO-91-CA-069, 1993 U.S. Dist. LEXIS 3361, at *88 (W.D. Tex. 1993).

217. *Id.* at *87, *90.

218. *Id.* at *92.

219. San Antonio Water System, *Chronology: 1991*, *supra* note 213.

Water planning and control had come to the hill country. With water conservation and regional land use plans, including the use of strategic greenbelts as aquifer recharge zones,²²⁰ the Austin/San Antonio area has continued to attract a large influx of newcomers eager to enjoy the beauty and lively economies of these two cities. Water planning throughout the state of Texas, implemented through regional planning boards, is now moving forward.²²¹

VIII. Conclusion and Observations

What conclusions might be drawn looking back on these snapshots, impressionistic as they be, of the effects of federal intrusion into Texas's sovereignty over its natural resources? And how might these lessons be usefully applied to observations about the Bush/Cheney national energy policy?

I would conclude that the federal government has been a useful enemy to have: Federal intervention has been welfare-enhancing in a state whose economy derives so much of its wealth from natural resources subject to the Rule of Capture. This is particularly the case in Texas, where all branches of state government with any degree of control over the state's oil and gas fields are elected, and where no branch of government had any real control over groundwater until a few years ago. The race to the bottom rationale for federal intervention—that states will compete for jobs and industry in ways that are ultimately self-defeating and which leave painful legacies—seems reflected in much of the history of Texas conservation law. As we have seen, the federal government began as an ally, not an enemy, in Texas's early conservation efforts, but this alliance was rooted in the New Deal philosophy of controlling the economic waste of too-low oil prices rather than in conservation science.

However, this early federal intervention also left Texas with a weak conservation framework, one which allowed thousands and thousands of unnecessary wells to be drilled, wells which have left a long lasting and costly legacy for the state's citizens. Had the federal government made a stronger attempt to intervene, as

220. Linda Prendez, *San Antonio Moves Toward Greener City*, SAN ANTONIO EXPRESS-NEWS, Oct. 25, 2000 at H1.

221. The Texas legislature enacted Senate Bill 1 in 1997, requiring statewide water planning to be implemented through sixteen regional water-planning groups whose regional plans are coordinated by the Texas Water Development Board. 1997 TEX. GEN. LAWS 3610 (June 1, 1997), 75th Leg., R.S. ch. 1010.

Henry Doherty so passionately advocated, Texas and all other states would have had to adopt a compulsory unitization statute. This would have resulted in a stronger, more efficient industry in all the producing states—an industry better able to survive the rigors of the global marketplace, and one which would have left far fewer scars of pollution on the countryside. Had the highest Court in the nation not approved the East Texas prorationing system, the Texas legislature would have been forced back to the drawing boards to devise conservation laws that better prevented surface and subsurface waste, unfair drainage patterns, and unnecessary well drilling. To this day, Texas is without a compulsory unitization act, making it difficult for the far fewer independent producers remaining in the state to use new technologies, such as enhanced oil recovery, hydraulic fracturing, and horizontal drilling.²²² The secular religion of private property rights has become so strong in Texas that TIPRO itself is not powerful enough to sway legislative opinion in support of the public good, as illustrated by the defeat of the proposed Enhanced Recovery Unitization Act in 1999.

And now some observations:

First. A defining reason for the weak conservation framework that developed in Texas was the legislature's real fear of monopoly power, coupled with the lack of any effective state regulation of the oil fields in the early 1930s. The major oil companies controlled the pipeline network, and in the regulatory vacuum also attempted to control production through voluntary prorationing committees. The majors possessed the scientific knowledge about best conservation practices, but they simply could not be trusted to act in the public interest.

This episode illustrates the imperative of having strong market monitors in the restructuring and privatization of the electricity industry today—at both the state and federal level. Electrical transmission grids, other than Texas's ERCOT, require interstate coordination far tighter than the loose binds that characterize the Interstate Oil Compact Commission.²²³ If FERC, the Department of Justice's Antitrust Division, and state public utility commissioners do not have the public's trust that they are policing the actions of the large private entities that transport and trade natural gas and electricity in the interstate and newly emergent retail

222. See Weaver, *Unitization Revisited*, *supra* note 35, at 7-5, 7-40.

223. BOSSELMAN ET AL., *supra* note 116, at 761-81.

energy markets, then restructuring will not succeed. Indeed the fallout from the federal government's slow response to California's electricity crisis has already impacted in Texas. Shell Energy Services, the new retail energy provider that I chose to supply electricity to my Houston home, pulled out of the retail electricity business which it once viewed as an exciting avenue of growth nationwide, citing the public's lack of interest in restructuring.²²⁴ State restructuring will long be linked in the public's mind with the California fiasco and President Bush's stubborn resolve, despite anguished pleas from many Western governors, that California must solve its problems by itself—a virtually impossible task given the interstate nature of the western electrical grid.²²⁵

Two. Problems of monopoly aside, the Texas experience well illustrates the difficulty that state legislatures have in overturning a private property rights regime once it becomes entrenched, even when the system is universally acknowledged to rest on market failure. The Tragedy of the Commons under the Rule of Capture is a simple example of market failure—no single actor can act in the public interest of conserving the common resource because his oil or gas will be drained away by others. The state must act to correct this market failure. But once the Rule of Capture (or a weak conservation system in its stead) becomes an entrenched state property right, only crises such as wars, droughts, floods, or catastrophic pollution of entire watersheds seem able to fight the lobbying power of the dug-in, parochial interests. Federal intervention under the Endangered Species Act in the Edwards Aquifer case was a much gentler trigger of change than other crises that have pushed Texas to adopt a stronger policy of sustainable development of its natural resources.

It takes political courage and real leadership to fight such entrenched interests. There are notable examples of this in Texas conservation law—Commissioner William Murray's shutdown orders and Commissioner Krueger's dissent on the 86% rule in the East Texas field. However, political courage at all levels of government is often in short supply.²²⁶ In this regard, the Bush/Che-

224. Laura Goldberg, *Shell Energy to Pull the Plug in Texas*, HOUS. CHRON., Sept. 5, 2001, at C1.

225. See, e.g., Editorial, *The Energy Calamity in California*, N.Y. TIMES, Jan. 27, 2001, at A14.

226. For an outrageous example of the Railroad Commission's condoning of illegal production by Texas independent producers, in violation of the agency's own rules, see the discussion of the "white oil" and "high perf" cases in Weaver, *The Eighty-Six Percent Factor*, *supra* note 17, at 514-518.

ney energy plan is wanting. While the most common of its many graphs and charts are those that show how much more energy efficient the U.S. economy has become since 1973,²²⁷ the report does not tell the American public the major reason for this phenomenon: The post OPEC-embargo rise in energy prices coupled with federal programs.²²⁸ Elected officials at any level are loathe to praise the virtues of energy markets when prices rise. They often point to the energy industry as scapegoats and recommend price controls, even when the higher prices reflect competitive markets rather than monopoly power.

The Bush/Cheney report devotes an entire chapter to the woe-ful impacts of higher energy prices on the American consumer.²²⁹ How then, will the American public be educated to accept the fact that energy prices should reflect the externalities imposed on public health, safety and the environment? Energy markets cannot be efficient if energy prices are subsidized and inadequately signal the true price of energy to the American public. A basic tenet of a free market system is that government regulation must correct for market failures arising from externalities.

In two short paragraphs, virtually buried in the 200-page report, the Bush/Cheney plan acknowledges that the energy industry is still too polluting. In Chapter Three on "Protecting America's Environment," the report states that "[t]o meet public health and environmental challenges, power plants, industrial sources, and vehicles will need to produce fewer potentially harmful emissions."²³⁰ In Chapter Five on "Increasing Domestic Energy Supplies," the report notes that most new gas wells drilled in the U.S. will require hydraulic fracturing, especially wells drilled to produce gas from coalbed methane seams. The report then states: "This source will most likely face added controls, [sic] and costs to ensure that disposal (by re-injection or discharge) of pro-

227. For charts and graphs lauding past strides in energy efficiency see NAT'L ENERGY POL'Y STUDY, *supra* note 2, at 1-4, 1-10, 2-1, 2-8, 3-3.

228. For years, the Federal Power Commission (now FERC) regulated the field price of natural gas, even though natural gas production was a competitive industry. The social welfare losses to U.S. producers and consumers of natural gas price regulation totaled in the many billions of dollars. See PAUL W. MACAVOY, *THE NATURAL GAS MARKET: SIXTY YEARS OF REGULATION AND DEREGULATION* (Yale Univ. Press, 2000).

229. NAT'L ENERGY POL'Y STUDY, *supra* note 2, ch. 2.

230. *Id.* at 3-3.

duction waters is done in an environmentally sensitive manner.”²³¹

In short, higher energy prices, if high for the right reasons—to correct market failures—are good for our market economy and good for our environment. Granted, there are ways to make our complex body of environmental law itself more efficient, using flexible market-based systems in pollution trading, but this does not obviate the fact that the greatest engine for energy conservation that mankind has ever known is higher energy prices. Federal government intervention in the form of tax credits and subsidies to the domestic energy industry will do little to stem oil imports.²³² Texas’ experience has shown that state efforts to subsidize and nurture marginal and idle wells ultimately created a hothouse industry that would always need more and more government support to stay alive in a global marketplace.²³³ Even the Houston Chronicle in an editorial titled “De-Energized” opined that there are far better ways to ensure our national security interest in stable energy prices than to trigger subsidized domestic energy production that gives the wrong price signals to energy consumers.²³⁴

Three. A sound energy/environment program cannot rest on voluntary efforts by industry. Such a premise conflicts with the

231. *Id.* at 5-6. Vice President Cheney’s home state of Wyoming is also home to the fastest growing coalbed methane play in North America. The environmental damage caused by the production of this type of gas is aptly described in Thomas F. Darin & Amy W. Beatie, *Debunking the Natural Gas ‘Clean Energy’ Myth: Coalbed Methane in Wyoming’s Powder River Basin*, 31 ENVTL. L. REP. (Envtl. L. Inst.) 10566 (2001). A coalition of fifty tourism-related businesses in Wyoming has asked President Bush to halt plans to drill on federal lands near Yellowstone National Park and other scenic areas. As the Wall St. Journal reports, the plea is unusual because it comes from local residents who administration officials have said would benefit from increased access to public lands in the West. See *Wyoming Business Group Seeks Drilling-Plan Halt*, WALL ST. J., Aug. 29, 2001, at A4. The rush to produce coalbed methane is spurred by federal tax credits. See John J. Fialka, *Cheney’s Home State Indulges in Gas Rush Spurred by Tax Credits*, WALL ST. J., May 31, 2001, at A18.

232. See NAT’L ENERGY POL’Y STUDY, *supra* note 2, at 5-6. The National Energy Policy Report virtually admits that the U.S. will become more dependent on oil imports. See *id.* at 5-3, 8-4. The Report devotes more pages to ways that the U.S. can strengthen global alliances with oil exporters than it does to ways to increase domestic oil and gas production. See *id.* at 5-3 to 5-10 & 8-1 to 8-21.

233. See PRODUCE OR PLUG?, *supra* note 120, at 24.

234. Editorial, *De-energized*, HOUS. CHRON., Mar. 19, 2001, at 18A. In another editorial, the Houston Chronicle wrote: “Oil analysts say the best guarantee of a stable oil supply is ‘diversity’, a term that is becoming a code word for letting international oil companies do business with any oil-rich dictatorship, no matter how rapacious.” Editorial, *Oily World*, HOUS. CHRON., Dec. 10, 2000, at C2.

very nature of competitive markets. Industry participants know this: bad actors will drive out the good, as demonstrated by Texas' well plugging experience when unbonded operators left orphaned wells on the doorsteps of the good actors. When then-Governor Bush propounded a voluntary program for the largest polluters in Texas to clean up our worsening air quality, it was a spectacular failure.²³⁵

As the IOGCC's own national energy policy so strongly indicates, what industry most needs is a level playing field—uniform regulatory standards applied fairly across the board to all actors in the industry. The IOGCC is on record in support of a national policy that prohibits the expenditure of tax dollars for oil and gas projects in foreign countries where regulation is less stringent than in the United States.²³⁶ Such a recommendation supports Professor Kirsten Engel's view that a race to the bottom in environmental standards would occur among states unless the federal government enacted uniform national standards of environmental protection.²³⁷ The domestic energy industry certainly perceives a global race to the bottom as a real threat to its competitiveness. Needless to say, uniform standards do not mean lower standards.

Four. Short-term political rhetoric too often trumps good science, with long-lasting and sometimes irreversible effects, as so sadly epitomized by the Santa Rita well's legacy.²³⁸ From 1924 to 1929, the American Petroleum Institute directors, steeped in the rhetoric of state's rights and private property rights, insisted that waste in the oil fields was negligible and fought against the best conservation tool that petroleum science had to offer—compulsory unitization. Such a stance seriously compromised the credibility of the major oil company witnesses who later pressed for compulsory unitization legislation in Texas during the battles over market demand prorationing in the 1930s. The history of Texas conservation law shows that when best science falls victim to political rhetoric, the long-term costs of environmental remediation

235. Editorial, *Great-Grandfathered*, HOUS. CHRON., Apr. 9, 2001, at 20A. About 750 industrial plants in Texas which were grandfathered (exempted from permitting requirements) under the Clean Air Act of 1970, were still operating in the year 2000 without permits or pollution control equipment. In 1999, Texas passed a law (the Clean Air Responsibility Enterprise, or CARE) to encourage the operators of these plants to apply for permits voluntarily. Only one plant acquired a permit. *Id.*

236. A DEPENDENT NATION, *supra* note 3, at 22.

237. Engel, *supra* note 8, at 374-376.

238. See Gold, *supra* note 159.

or re-transitioning to a more sustainable economy will come back to haunt the state's citizens.

This lesson, of course, ties into the problem of global climate change. Best science today says that mankind's leap into the age of fossil fuels is warming the global commons of the atmosphere by enveloping the earth in a blanket of carbon dioxide.²³⁹ The Kyoto treaty seeks to unitize this commons, to assign prorated quotas of carbon dioxide emissions to the nations of the world, just as petroleum engineering science recommends that oil fields be unitized and prorated.²⁴⁰

The task of reaching voluntary agreement on carbon dioxide quotas will dwarf by orders of magnitude the problems faced by operators in oil and gas fields. And there is no compulsory process to bring the biggest emitter of all, us, to the negotiating table. Yet, the lesson of those eighty-one Wyoming operators, who met for three years and finally eked out an agreement that would allow all to benefit in a fair way from the increased production made possible by unitization, is that solutions are worth pursuing, even though perfection cannot be expected. Energy-related activities represent about 85% of the manmade greenhouse gas emissions in the United States.²⁴¹ If the United States does not join the world community as an active player seeking solutions to what is probably the largest energy problem facing the world, then we will be the nation that has dragged the rest of the world to the bottom of the barrel.²⁴²

Some of the leading major oil companies, mainly those centered in Europe, such as Shell and BP, have pledged to the public that they will reduce greenhouse emissions in significant percentages.²⁴³ An energy policy that does not support the best actors in

239. Neal F. Lane & Rosina Bierbaum, *Recent Advances in the Science of Climate Change*, 15 NAT. RESOURCES & ENV'T 147 (2001).

240. BOSSELMAN ET AL., *supra* note 116, at 1232-33.

241. NAT'L ENERGY POL'Y STUDY, *supra* note 2, at 3-10.

242. *Id.* at 3-10. The Bush/Cheney National Energy Policy Report devotes one page to global warming. It blandly asserts that our nation recognizes the seriousness of this global issue, that the rate of growth in U.S. greenhouse gas emissions has begun to decline because of programs that promote energy efficiency and renewables; and that industry and the federal government are researching new technologies that will reduce emissions or sequester them. *Id.*

243. See Shell Canada Ltd., News Release, Environment and Community Groups Advise Shell Canada on Reduction of Greenhouse Gas Emissions (June 7, 2000), at http://www.shell.ca/code/library/news/2000/00nr_jun07_climate.html (last visited Jan. 28, 2002); see also, BP, *Frequently Asked Questions: How Will BP Meet the 10% Reduction In Greenhouse Emissions—Is This For Real?*, at http://www.bp.com/faqs/faqs_answer.asp?id=321 (last visited Jan. 28, 2002).

the industry cannot expect to win the public's trust that it is the product of a fair and balanced process. The energy industry houses some of the brightest minds in business; it is a leader in technological advances. Carbon dioxide sequestering, either in depleted reservoirs or as a secondary recovery technique, may be a useful storage mechanism.²⁴⁴ The sooner that this industry is put to work on the problem, the more likely it is that the world's economy can absorb the ultimate costs of a Kyoto-like treaty without serious disruption.

The Bush/Cheney energy policy calls for enactment of a multi-pollutant law to significantly reduce and cap emissions of sulfur dioxide, nitrogen oxides and mercury from electric power plants.²⁴⁵ If the missing fourth pollutant, carbon dioxide, is regulated at a later date, when a new administration is convinced by failing ecosystems, droughts and floods, that the science of global warming is sound, this piecemeal approach to pollution controls will probably result in expensive retrofitting that costs more than an integrated four-pollutant strategy adopted now. The National Energy Policy fails its own fundamental premise that it will "fully integrate [the country's] energy, environmental, and economic policies."²⁴⁶

Five. A political philosophy that entrusts more power to the states over energy development within their borders, including a greater voice in drilling on federal lands such as National Monuments, should also expect states to shoulder more responsibility for solving problems of their creation which hinder increased oil and gas recovery. The lightning rod of the Bush/Cheney NEP is its recommendation to open up ANWR. Many in this audience who oppose this recommendation surely must be wondering why we should open up a wilderness area in a remote, ecologically sensitive area of the very state that is already experiencing serious effects of global warming on its permafrost. Moreover, West Texas operators are eager to produce more oil on the Texas plains if only Texas politicians had the courage to trump the political rhetoric of the diehard private property rights advocates by strengthening the state's conservation laws.²⁴⁷

244. Scott H. Stevens & John Gale, *Geologic CO₂ Sequestration*, OIL & GAS J. 40 (2000). Highly mature regions, such as the U.S. Permian basin, may someday realize more revenue from CO₂ disposal than from oil production. *Id.*

245. NAT'L ENERGY POL'Y STUDY, *supra* note 2, at 3-3.

246. *Id.*

247. For other ways in which state or local governments can promote domestic exploration and production, see Owen L. Anderson & Ernest E. Smith, III, *The Use of*

Six. Professor Richard Stewart, whose seminal 1977 article "Pyramids of Sacrifice" questioned why states should be forced to sacrifice their own welfare balancing of development and environmental protection on the altar of federal standards, examined the same issue from a global perspective in 1993.²⁴⁸ In this later article, he argues that a nation's imposition of stringent environmental regulation and liability rules may harm its international competitiveness.²⁴⁹ In this, he and the Interstate Oil and Gas Compact Commission are of a mind. He asserts that our "centralized, legalistic regulatory system" has become dysfunctional and particularly notes that our sweeping liability rules for hazardous waste cleanup under Superfund, for natural resources damages, and for personal injury lawsuits is unique in the world and is overwhelming in its "attendant transaction costs, delay, and uncertainty."²⁵⁰

Isn't the real lesson of Superfund that it is enormously more expensive to clean up the earth than to not pollute it in the first place? In addition, isn't the best way to avoid litigation to create a regulatory and policy framework that gives all stakeholders—industry, environmentalists, NGOs, academics, local, state and federal officials—an opportunity to voice their opinions, to contribute their unique knowledge and viewpoints, and to learn from each other? In this regard, the worst thing about the Bush/Cheney national energy policy is the secrecy shrouding its development. Would Vice President Cheney be quite so dismissive of energy conservation as being only a "personal virtue" if he had the benefit of hearing the views of energy economists and policymakers from environmental organizations like Environmental Defense or academic institutions like Pace's Energy Project? Likewise, would these groups be quite so dismissive of the Bush/Cheney plan if it had been developed openly? Secret policymaking is not a governmental virtue when it is ultimately the American public who must decide where the public trust lies in balancing energy needs and environmental goals.

Law to Promote Domestic Exploration and Production, 50 INST. ON OIL & GAS L. & TAX'N 2-0 (Matthew Bender & Co., 1999).

248. Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Energy Policy*, 86 YALE L.J. 1196 (1977); Richard B. Stewart, *Environmental Regulation and International Competitiveness*, 102 YALE L.J. 2039 (1993).

249. See Stewart, *Environmental Regulation and International Competitiveness*, *supra* note 248, at 2040.

250. *Id.* at 2064, 2083.

A Final Personal Note. Of all the federal laws most ardently attacked by many in the private property rights movement, the Endangered Species Act is probably at the top of the list. However, if only a little blind salamander had been found underlying the coastal plains of the Houston/Galveston area years earlier. A rapidly growing Houston, fueled by the energy industry, merrily pumped groundwater from its clay-like, gumbo soil, and the city began to sink into the sea.²⁵¹ By the 1970s, an entire subdivision of 450 neat and tidy homes called Brownswood, was submerged by the waters of the Gulf of Mexico. The San Jacinto Battleground State Park, site of a crucial battle in Texas's war of independence against Mexico, had lost 100 acres of its 430-acre property. Parts of the southeast area had subsided more than ten feet, exposing huge swaths of land to tidal flooding from hurricanes and tropical storms. In 1961, Hurricane Carla produced tides of over sixteen feet and flooded 123 square miles of land in Harris and Galveston Counties alone. Similar tides today would flood at least thirty additional square miles, many of them extensively developed with homes and schools and shops. A 1975 study estimated that lost property values from cracked foundations and increased flooding exceeded the cost of switching from groundwater to imported surface water. Still, as Houston and its environs visibly subsided, elected officials failed to act.

In 1978, a group of residents in Friendswood, a large subdivision just south of Houston near Galveston Bay, sued a neighboring landowner who was pumping massive amounts of groundwater to sell to industrial purchasers.²⁵² The residents claimed that the pumping had caused their property to sink below sea level, subjecting them to serious flooding. The Texas Supreme Court held that it was powerless to act in the face of the well-established Rule of Capture, harsh and outmoded as it was, but called upon the Texas legislature to address the region's problem.²⁵³ With public alarm growing, the Texas legislature passed the Houston-Galveston subsidence district to regulate ground water pumping and to shift the city to surface water.²⁵⁴ The dis-

251. This historical overview of the effects of pumping groundwater on properties in the Houston/Galveston area, appears in Joann Matthieson, *Land Subsidence in Texas* (1998) (unpublished chapter in materials prepared for Texas Water Law course at the University of Houston Law Center) (on file with author).

252. *Friendswood Dev. Co. v. Smith-Southwest Indus.*, 576 S.W.2d 21 (Tex. 1978).

253. *Id.* at 29.

254. Chap. 284, 64th Legislature, Reg. Sess. (Tex. 1975) (creating the Harris-Galveston Coastal Subsidence District).

trict has succeeded in bringing subsidence in the southeastern part of the area to a virtual halt in recent years, but the burgeoning residential areas of northwest Houston that have not yet converted have sunk as much as a foot and a half in just eight years (from 1987 to 1995).²⁵⁵

Then, three months ago, at the start of the summer of 2001, came Tropical Storm Allison—not even a hurricane, just a slow moving mass of clouds. The storm hovered over downtown Houston and the eastern side of the city that had subsided so visibly during the 1960s and 1970s. Rivers of water poured into the underground parking garages, tunnels and utility corridors of downtown office buildings, courts, hospitals, arts centers, and the University of Houston Law Center, knocking out all the subterranean electrical equipment that powered the energy capital of the world and destroying priceless orchestral scores and musical instruments, ballet costumes and sets, archives, records, computers, phone equipment, and 250,000 books in the Law Center's library. The Rule of Capture had ruled again. If only Houston had had its own blind salamander to open its eyes to the Tragedy of the Commons sooner.²⁵⁶

255. Todd Ackerman, *That Sinking Feeling Hits Northwest Houston*, HOUS. CHRON., Aug. 27, 1997, at A1.

256. Due to land subsidence and its location on a low-lying coastal plain, Houston is at greater risk from sea level rise due to global warming than most other coastal areas on North America. See John Anderson, *Why Global Warming Matters to the Texas Gulf Coast*, HOUS. CHRON., Aug. 18, 1996, at C4; see also JUDITH CLARKSON, URBAN AREAS: THE IMPACT OF GLOBAL WARMING ON TEXAS 170-80 (1995), excerpted in BOSSELMAN ET AL., *supra* note 116, at 1217-20.