10. Other Significant Intervention

In addition to the government intervention described in chapters 2 through 9, oil and gas exploration and production has been subject to other consequential state activism, some unique to the industry and others experienced by business throughout the economy. This chapter attempts to chronicle and critically review these miscellaneous interventions.

Labor-market regulation and securities regulation are not unique to petroleum, but they have particular application to exploration and production. Accounting regulation, similarly, has particular application at the wellhead. Those regulations are examined. Loan subsidies to conventional fuels are surveyed, and a detailed examination of synthetic-fuel subsidization—which qualifies as oil and gas production—is provided. The chapter ends by describing a variety of local, state, and federal interventions to complete a comprehensive look at intervention in oil and gas exploration and production.

Labor-Market Intervention

Government intervention in the labor market has directly affected drilling operations and subsidiary industries. State and federal edicts, as well as court interpretations, have accorded unions special privileges—specified minimum wage rates, detailed working conditions, and set hours of employment. These regulations have helped some workers and employers, hurt others, and in all cases interfered with business costs and thus market prices for the affected goods and services.

Union Development and Early Regulation

The American labor union movement grew up alongside the petroleum industry. Early unions took shape after the Civil War, and there were 171 national unions by 1909. Particular gains were made between 1897 and 1904 when labor union membership quadrupled.[1]

In the first decades of exploration and production, local independent craft unions such as the Well Drillers' Union sprang up in the Pennsylvania-Ohio oil region. The first formal labor organization, the Federal Labor Union of Oil Field Workers (affiliated with the American Federation of Labor), was created in 1892. In 1899, the International Brotherhood of Oil and Gas Well Workers was chartered by the American Federation of Labor (AFL) to represent oil production workers of the Ohio Oil Company. This union called the first strike in the exploration and production sector in 1904.[2] The union claimed membership in fields in western Pennsylvania and California, but lack of worker interest led to its demise in 1906.[3] Only scattered oil-industry unions remained, such as the Guffey Oil and Gas Well Workers Local 11998, formed after a proposed 17 percent pay cut, waged a successful strike in several large Texas oil fields in 1905. Vestiges of unionism in Gulf Coast fields were removed by the

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[1] Allan M. Cartter and F. Ray Marshall, *Labor Economics: Wages, Employment and Trade Unionism* (Homewood, IL: Richard D. Irwin, 1972), pp. 50, 61.

[2] Herbert Werner, "Labor Organizations in the American Petroleum Industry," appendix to *The Age of Energy, 1899–1959*, vol. 2 of *The American Petroleum Industry*, by Harold F. Williamson, Ralph L. Andreano, Arnold R. Daum, and Gilbert C. Klose (Evanston, IL: Northwestern University Press, 1963), p. 830.

[3] Daniel Horowitz, *Labor Relations in the Petroleum Industry* (New York: U.S. Works Progress Administration, 1937), p. 58. A pro-union history blamed the failure of unionism in the oil industry on the "burning enmity of Standard Oil." Harvey O'Connor, *History of Oil Workers International Union—CIO* (Denver, CO: Oil Workers International Union, 1950), p. 4.

1907 depression.[4]

Formal collective bargaining by oil workers was limited by free-market conditions. The common law offered workers the right to unionize, but it also protected employers' right to set wages and other work conditions, criticize unions, prohibit union activity on company property, and hire and fire workers on nonunion conditions.[5] Modest capital investment per worker, compared with that of later decades, also limited the influence of labor and the "going wage." Except in certain highly skilled occupations, unions in search of higher pay and better working conditions were artificial cartels that market forces discouraged and eliminated. The market discipline exerted against early unionization was what consumers were prepared to pay for final products rather than any inherent power or ruthlessness of management.

Until World War I, government intervention did not modify the common-law approach to labor-management questions. One common-law application, however, was not consonant with a free market. In a 1908 antitrust decision under the Sherman Act, the Supreme Court ruled against secondary boycotts by unions as a restraint of trade.[6] This was removed in 1914 by the Clayton Act,[7] which labor leaders considered the Magna Carta of the American labor movement. This amendment was joined in the same act by an intervention limiting an employer's right to use injunctions against undesired labor practices (such as picketing on management property). This modest beginning would be powerfully supplemented by other pro-labor laws in the 1930s.

On the state level, labor legislation also gained a foothold. Beginning with New Hampshire in 1847, several states passed maximum-hour legislation. Work-site safety law began in 1877 in Massachusetts, the state that also passed the first minimum wage law in 1912. Following Massachusetts with wage regulation, typically covering women and children, were Nebraska, Oregon, Utah, Washington, Wisconsin, California, Colorado, and Minnesota in 1913; Arkansas and Kansas in 1915; Arizona in 1917; the District of Columbia in 1918; and North Dakota and Texas in 1919.[8] More states followed during the New Deal.

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War planning during World War I included unprecedented federal intervention in the labor market. In addition to conscription, workplace regulation and arbitration settlements by the National War Labor Board and the War Labor Policies Board were law. The government effort was clearly pro-union, and not surprisingly, unionism grew during the period. The Texas Federation of Labor and the Houston Trades Council visited oil fields in the state in the quest for membership. The Goose Creek field, in particular, became heavily unionized with several thousand members. A strike idled fields in Texas and, to a lesser extent, Louisiana despite settlement efforts by the U.S. Conciliation Committee. Under the pretense of the war emergency, martial law was declared, and the National Guard policed the field, which helped replacement workers restore production.[9]

While Gulf Coast strikes failed to win concessions, California unions won their demands without striking for an eight-hour day (to replace the twelve-hour day) and a $4.00 per day

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[4] Harvey O'Connor, *History of Oil Workers International Union*, pp. 4–5.

[5] Sylvester Petro, *The Labor Policy of the Free Society* (New York: Ronald Press Company, 1957), pp. 138–40.

[6] Loewe v. Lawlor, 208 U.S. 274 (1908).

[7] Pub. L. 63-212, 38 Stat. 730 (1914). For "Magna Carta," see *Allen Bradley Co. v. Local Union No. 3*, 325 U.S. 797, 804 (1945).

[8] Paul H. Douglas et al., *The Worker in Modern Economic Society* (Chicago, IL: University of Chicago Press, 1925), p. 850.

[9] Harvey O'Connor, *History of Oil Workers International Union*, pp. 5–7.

minimum wage. With naval oil contracts at stake, these concessions were engineered by the president's Mediation Commission and enforced by a federal inspection board.[10] Several companies already had awarded similar concessions to preserve labor peace, which influenced other West coast firms to go along.

Wartime union growth led to the formation of the International Association of Oil Field, Gas Well and Refinery Workers of America in June 1918 to consolidate unions based in California, Texas, Oklahoma, Louisiana, and Kansas. Membership reached 24,800 in 1921 but declined precipitously the next year and remained low for the rest of the decade. Company-specific unions became more common. The introduction of company welfare plans that offered on-the-job disability insurance and retirement benefits, and incentive programs that increased productivity and reduced turnover, were important in the transformation. Stock subscription plans were introduced by Cities Service (1917) and Jersey Standard (1920); by 1928, sixteen large oil companies had employee stock ownership programs.[11]

Pension plans were introduced in 1918 by California Standard, Jersey Standard, and Indiana Standard, and by 1929, over 200,000 workers in sixteen firms were participants. Jersey Standard inaugurated paid vacations in 1923. Dismissal compensation, health and accident insurance, and life insurance were other new policies of oil firms. These innovations came to a halt in 1929 with the crash of the stock market and ensuing Great Depression, a reversal that rekindled government pro-union policies.

Legislation in the 1930s

Pro-labor legislation passed during and immediately after the New Deal formed the basis of union privileges that have endured to this day. Falling wages and incomes were seen not as the effect but as the cause of the downturn, and higher labor incomes were promoted as a remedy. A second motivation was the strong perception that the worker was at an inherent bargaining disadvantage vis-à-vis the employer, an inequity that certain union rights could balance.

Within days of the October 24, 1929, crash, President Herbert Hoover called a series of White House conferences with leading businessmen to lobby for higher wage rates. Hoover desired to increase wage rates to precrash levels on the rationale that labor's ability to buy back the product would be increased (or in terms J. M. Keynes would soon popularize, aggregate demand would be increased).[12] On November 21, Jersey Standard's president Walter Teagle, with other leading businessmen, attended a White House session at which an informal agreement was made with Hoover that if the president would continue to coordinate policies with business input, they would resist pressures to reduce wages.[13] The tit for tat was observed. A second industrial policy was work sharing—hours per worker were shortened to hire more workers. In 1931, for example, Jersey Standard hired 3,000 workers under the banner of "job security by job sharing."[14]

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[10] Harvey O'Connor, *History of Oil Workers International Union*, p. 11.

[11] These programs are described in Daniel Horowitz, *Labor Relations in the Petroleum Industry*, pp. 45–57.

[12] This was not Hoover's first accommodation of labor. See Murray Rothbard, "Herbert Hoover and the Myth of Laissez-Faire," in *A New History of Leviathan*, ed. Ronald Radosh and Murray Rothbard (New York: E. P. Dutton, 1972), pp. 116–20.

[13] Murray Rothbard, *America's Great Depression* (Kansas City, MO: Sheed and Ward, 1963, 1972), pp. 187–88.

[14] Murray Rothbard, *America's Great Depression*, p. 294. Hoover later appointed Jersey Standard's Walter Teagle to head the National Employment Campaign, an organization dedicated to increasing employment by 1 to 2 million through work sharing, a plan endorsed by the AFL. A. E. Mockler, "Teagle Temporarily Retires From Oil Industry to Direct National Employment Campaign," *Oil & Gas Journal*, September 8, 1932, p. 10. Cited hereafter as *OGJ*.

The unintended result of high-wage policy was to *perpetuate* unemployment, which lowered labor's purchasing power and hindered economic recovery. Adjusted for deflation, wage rates were increasing, not decreasing as required to increase employment and hasten market readjustment.[15]

Hoover engineered several other labor-market interventions before his defeat by Franklin Roosevelt in 1932. Beginning in September 1930, immigration quotas were reduced by 90 percent and thousands of "undesirable" aliens were deported to reduce "excess" labor created in part by the industry-government above-market wage policy.[16] On March 23, 1932, Hoover signed the Norris-LaGuardia Act, which represented "the culmination of a fifty-year campaign by trade unionists and their allies in the academic community against 'government by injunction.'"[17] Stating that "the individual unorganized worker is commonly helpless to exercise actual liberty of contract and to protect his freedom of labor, and thereby to obtain acceptable terms and conditions of employment," the act barred federal courts from enforcing so-called yellow-dog contracts (under which workers agreed, as a condition of employment, not to join a union), and weakened the right of employers to seek court injunctions against trespass, destruction of property, and intimidation.[18] With the rule of law suspended, union bullying could restrict the entry of new workers when union demands exceeded market levels to establish monopolistic cartels at the expense of displaced laborers, employers, and consumers.[19]

The National Industrial Recovery Act (NIRA), signed by Roosevelt on June 16, 1933, contained a labor section applicable to all industry codes.[20] Article II of the Code of Fair Competition for the Petroleum Industry (Oil Code) was approved by Roosevelt on August 19 to formalize wage and hour regulation that Hoover previously approached by understandings and agreement.[21] For common labor, including drilling and drilling-related personnel, wage floors were tied to the location of work, ranging from $0.45 per hour in the South to $0.52 per hour in the West, North, and East. Clerical workers were not covered. Wages for skilled labor were set at the minimum wage plus "the differentia[l] between ... the minimums established in this code [and the rates] existing in the industry in each geographical area on July 1, 1929."[22] The Oil Code was based, as were other industry codes, on a belief that recovery could result from pricing labor as if boom conditions still existed. The New Deal, in this respect as in others, had Hooverian roots.

Maximum hours were set at 40 hours for oil and gas production personnel including clerical employees. Late in the program, on July 7, 1935, derrick- and rig-construction personnel were brought under hours law. The regulation had the effect of spreading the work around, particularly among common laborers, some of whom otherwise would have been

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[15] Murray Rothbard, *America's Great Depression,* pp. 290–94. For a refutation of the purchasing-power argument that higher wages increase demand to end resource idleness, see Murray Rothbard, *America's Great Depression*, pp. 43–53. An exposition of the argument from a New Deal perspective is contained in Leverett Lyon et al., *The National Recovery Administration: An Analysis and Appraisal* (Washington, DC: Brookings Institution, 1935), pp. 756–75.

[16] Murray Rothbard, *America's Great Depression,* pp. 215–16.

[17] Morgan Reynolds, *Power and Privilege* (New York: Universe Books, 1984), p. 97.

[18] Pub. L. 72-65, 47 Stat. 70 (1932). A third purpose of the bill, which, unlike the other provisions was consonant with the free market, was to exempt labor groups from antitrust law.

[19] See the discussion in Morgan Reynolds, *Power and Privilege*, pp. 101–4.

[20] Pub. L. 73-67, 48 Stat. 195 (1933).

[21] Pub. L. 73-67, 48 Stat. 195, 199 (1933). National Recovery Administration, *Code of Fair Competition for the Petroleum Industry* (Washington, DC: Government Printing Office, 1933), p. 6. Cited hereafter as *Oil Code.* Harvey O'Connor called the wage and hour regulations "the single greatest victory OWIU ever won for oil workers." O'Connor, *History of Oil Workers International Union*, p. 30.

[22] *Oil Code*, pp. 6–7.

priced out of the market by the minimum wage law.

On September 13, 1933, the Oil Code's labor provisions were revamped. At the request of owners complaining of sagging profits, stripper wells were exempted from hour ceilings, subject to approval from the Planning and Coordination Committee (PCC), the industry advisory group created to assist code administrator Harold Ickes. The base-period differential for skilled labor, tied to rates existing on July 1, 1929, was abolished in favor of wages determined on a discretionary basis by the PCC. This introduced flexibility not present with unskilled labor wage determination. The PCC then recommended on November 15 that established wages be retroactively applied to the day the code became effective—September 2, 1933.

The Petroleum Labor Policy Board was created on December 19, 1933, to replace the PCC labor subcommittees. Made up of three "impartial public representatives," the board had as its first order of business to devise minimum wage rates for skilled labor to recommend to the Petroleum Administration Board.[23] This resulted in a May 21, 1934, order that reverted to the 1929 standard for unskilled labor wage determination and set forth an extremely complicated set of adjustment factors based on hours of work, age, health, and work efficiency. The goal was equity, which, according to Myron Watkins, was "simply beyond the human powers of any administrative organization, however familiar with working conditions it might be."[24] The Petroleum Administration Board found this out firsthand and left wage determination to "mutual bargaining" beginning August 1. This was followed by a September 4, 1934, order exempting collective wage agreements from regulation.

In Texas, several measures were proposed to maximize oil employment. In mid-1933, the Independent Petroleum Association of Texas prepared a draft oil code that opposed unitization because rig-crew employment would be reduced.[25] An order from the Texas Railroad Commission, effective March 16, 1934, required operators of all wells in the state, estimated at nearly 18,000, to submit daily production reports attested to by employees on a twenty-four-hour watch. The "Watchman Order" was intended not only to detect hot oil but to create 40,000 jobs in the state.[26] The order was recognized as impractical and never became operative.

Federal wage and hour regulation ended with the *Schechter* decision in May 1935, which invalidated the NIRA and over 500 industry codes predicated on it.[27] Table 10.1 gives percentage changes from the 1929 base year to summarize the labor market under the two-year experiment.

The statistics indicate that employment and hourly wages significantly increased from May 1933 through the end of the code period. This seems to contradict the theoretical position that statutory wage hikes *reduce* employment, but two circumstances intervened. The development of the huge East Texas field, with very low incremental development costs, contributed to increased employment. Second, government work-share policy increased employment by limiting weekly hours per worker. Relatively stagnant earnings reflected the tradeoff between higher wages and less work. Increased employment under the code, therefore, was an ambiguous gain compared with what might have occurred in a free market with unregulated wage scales and unregulated hours.

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[23] A summary of the activities of the Petroleum Labor Policy Board is contained in Daniel Horowitz, *Labor Relations in the Petroleum Industry*, pp. 68–70.

[24] Myron W. Watkins, *Oil: Stabilization or Conservation? A Case Study in the Organization of Industrial Control* (New York: Harper & Brothers, 1937), p. 200.

[25] "Texas Independents to Offer Code Opposed to Unitization," *Oil Weekly*, July 24, 1933, p. 7.

[26] "Texas Commission Issues Drastic Production Order under New Laws," *Oil Weekly*, March 19, 1934, pp. 9–10.

[27] A. L. A. Schechter Poultry Corp. v. U.S., 295 U.S. 495 (1935).

Table 10.1
DRILLING AND PRODUCTION EMPLOYMENT STATISTICS PER CAPITA

	Employment		Payroll		Wage/Hour		Hours/Week		Earnings / Week	
Date	Majors	All	Majors	All	Majors	All	Majors	All	Majors	All
May 1929	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
May 1933	52	51	40	38	85	84	90	88	77	74
May 1934	76	80	58	60	128	116	61	65	78	75
July 1935	–	83	–	62	–	118	–	67	–	79

SOURCE: Myron Watkins, *Oil: Stabilization or Conservation?* p. 205.

In an unregulated environment, a higher level of employment, longer weekly hours, and lower—but increasing—wages could have been expected. Weekly earnings could well have been lower after multiplying increased hours by lower wages. Total industry payroll, however, could have been higher without regulation because many more oil workers, especially the least skilled, would have been employed.

The experience of labor under New Deal regulation was unique. The primary purpose of New Deal labor legislation, not unlike that of subsequent labor legislation, was not improving the lot of the common worker. Explained Myron Watkins:

> The petroleum code, like most NRA codes, was not conceived fundamentally as an instrument for the alleviation of the conditions of labor. It was conceived as a means of fostering business recovery, and was so administered. Hence the wages and hours provisions of the code represented essentially concessions made by business interests in exchange for privileges accorded them.[28]

If New Deal labor legislation was a setback for nonunion workers without entry skills or seniority, it was a heyday for unions. The International Association of Oil Field, Gas Well and Refinery Workers of America's pre-NIRA membership of fewer than 300 workers climbed to 12,500 in 1934, 42,800 in 1935, and 75,000 in 1936.[29] Union demands were met by law; only minor strikes in Texas and the midcontinent fields were reported.

Unprecedented union power, both in numbers and political pull, ensured continued economic intervention on behalf of unions after the demise of the NIRA. For example, the National Labor Relations Act (Wagner Act) of July 5, 1935, reinstated and extended union guarantees previously contained in the NIRA.[30]

Premised on the "inequality of bargaining power" of workers, the law was replete with government intervention favoring labor at the expense of the property rights of employers. Management was forced to bargain with worker collectives (including locals of the newly renamed Oil Workers' International Union, representing the petroleum industry within the AFL) and was banned from taking actions on their property to prevent union organization. Discrimination against pro-union workers was illegal. Hiring new workers to break strikes was made difficult. The act also created a three-member National Labor Relations Board to investigate allegedly "unfair" labor practices by employers and assist in labor union matters. The oil industry, contrary to the initial interpretation by the industry, was covered by the federal law.[31]

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[28] Myron Watkins, *Oil: Stabilization or Conservation?* p. 200.

[29] Daniel Horowitz, *Labor Relations in the Petroleum Industry*, pp. 66–67. Also see Harvey O'Connor, *History of Oil Workers International Union*, pp. 66–67.

[30] Pub. L. 198, 49 Stat. 449 (1935). The Wagner Act was declared constitutional in NLRB v. Jones and Laughlin Steel Corporation, 301 U.S. 1 (1937).

[31] See Barbara Hinds, "Applicability of the Fair Labor Standards Act to the Oil Industry," *Texas Law Review*

The next major legislation to replace the NIRA was the 1938 Fair Labor Standards Act, administered by the Department of Labor (established 1913).[32] The law reinstituted the minimum wage, subject to certain criteria, set maximum hours, and delineated types of work permissible for persons from fourteen to eighteen years of age. These provisions applied to workers involved with interstate products, which covered over 50 percent of the nation's workforce.

Subsequent Developments

The Norris-LaGuardia and Wagner Acts, with minor amendments, continued to govern labor relations. The National Labor Relations Board, which began in 1936 with 140 employees, had almost 3,000 as of 1984. Administrative decisions, which in the beginning filled several volumes a year, now fill a weighty volume every few months.[33] Labor law is as rewarding for lawyers as it is complex for firms in the absence of a common-law, free-market resolution of labor questions.

The most amended area of labor regulation has been the Fair Labor Standards Act, which has periodically adjusted wage floors for inflation, growth, and political reasons. The major impact of this law in the oil and gas industry has been in gasoline retailing. Although the law is applicable to exploration and production, most pay scales for such work have been above minimum statutory levels, and work-site mobility has made noncompliance difficult to detect. Nonetheless, a bias was introduced that substituted capital for labor, increased costs, and reduced jobs for marginal (young, minority, unskilled) workers.

In addition to innumerable administrative interpretations and legislative amendments, several important new laws were enacted. The Labor Management Relations Act of 1947 (Taft-Hartley Act) moderated the Wagner Act by specifying illegal union activity (including the closed shop) and replaced the Labor Department's U.S. Conciliation Service with the Federal Mediation and Conciliation Service.[34] The 1940s were a decade of reaction against the virtual sweep of unions the decade before.

The later 1940s brought a reaction, particularly after Republicans won control of both houses of Congress for the first time in eighteen years. An important decision by the New Deal's Supreme Court, *Anderson v. Mt. Clemens Pottery Co.* (1946), expanded the working time for which employers could be required to compensate employees under the Fair Labor Standards Act. Applied to petroleum operations, the decision meant that certain travel time to distant work sites could become compensable. Congress responded with the Portal-to-Portal Act of 1947, which, like the Taft-Hartley Act, formed part of the postwar rollback of New Deal labor law. It limited employer liability for travel and for preliminary and postliminary activities made compensable under Anderson and similar judicial interpretations.[35]

Before the act, the broader interpretation of compensable hours had affected petroleum operations. If a worker took twenty hours to change drilling sites and spent fifteen minutes daily going to work thereafter, for example, the employer had to count the twenty hours plus each day's fifteen minutes as hours worked for compensation at the minimum wage or higher. This encouraged companies to hire nearby contract labor rather than company men to

(December 1941): 204–12. Many states passed "little Labor Relations Acts" with similar union privileges.

[32] Pub. L. 75-718, 52 Stat. 1060 (1938). The law was upheld in *United States* v. *Darby*, 312 U.S. 100 (1941). Previously, federally financed projects set minimum wages, which corresponded to union rates pursuant to the Davis-Bacon Act of 1931 (Pub. L. 798, 46 Stat. 1494) and the Walsh-Healey Public Contracts Act of 1936 (Pub. L. 74-846, 49 Stat. 2036).

[33] Morgan Reynolds, *Power and Privilege*, pp. 110–11.

[34] Pub. L. 80-101, 61 Stat. 136 (1947). Another law moderating union power was the Landrum-Griffin Act of 1959 (Pub. L. 86-257, 73 Stat. 519).

[35] Pub. L. 80-49, 61 Stat. 84 (1947).

perform repair work and other unexpected chores at distant well sites.[36] Thus, the interpretation that Congress sought to limit had hurt some workers, particularly company men, while benefiting others, such as contract labor.

A new area of labor law began with the Occupational Safety and Health Act of 1970.[37] As originally promulgated, oil- and gas-well businesses were not classified under the General Industry Standards. In 1973, the Labor Department applied its Construction Safety Standards to oil-field supply companies on the rationale that hazards similar to the ones in the construction industry existed in the oil-field supply industry. This was disputed, and the Occupational Safety and Health Review Commission ruled that the assigned standards were inapplicable in a series of decisions between 1977 and 1982.

Beginning in 1980, federal studies to measure and evaluate wellhead safety began. After a meeting with industry representatives, in particular the Association of Oil Well Servicing Contractors, a proposed rule-notice was released in late 1983 with 17 pages of proposed regulations and alleged justifications, applicable to an estimated 47,000 drilling personnel and 48,000 servicing and special services employees.[38] Hearings were held at which industry opposition was voiced by the International Association of Drilling Contractors.

In March 1955, the Oil Workers International Union merged with the United Gas, Coke and Chemical Workers to form the Oil, Chemical and Atomic Workers International Union. Representing 160,000 workers at its inception, the union as of 1984 claimed a membership of 130,000, which in the petroleum area is primarily oil field and refinery related.

Loan Subsidies

Reconstruction Finance Corporation

The Reconstruction Finance Corporation Act, another example of Hoover's activist policy to combat the Great Depression, was signed into law on January 22, 1932.[39] Based on the War Finance Corporation of World War I, the Reconstruction Finance Corporation (RFC), with a $500-million budget, was instructed to lend public funds to failing banks—under Roosevelt the RFC was expanded to cover all business—to stop deflation and increase employment to foster recovery.

From its beginning until 1945, when it joined the war effort with its subsidiary the Defense Plant Corporation, the RFC was run by Texan Jesse Jones, who established a policy of not providing public funds to the oil and gas industry. He explained:

> Our policy of not lending to the oil industry was based on two considerations: first, the oil business was profitable; it was able to command money when other kinds of business could not; secondly, if we loaned a man money to drill an oil well and another man owning the adjoining property sought a loan for the same purpose, we would be honor-bound to accommodate him. So, as a policy, we simply decided against lending to the oil industry, though we had ample opportunities, from Texas and probably from another state or two.[40]

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[36] Henrietta M. Larson and Kenneth Wiggins Porter, *History of Humble Oil & Refining Company* (New York: Harper & Brothers, 1959), pp. 620–21.

[37] Pub. L. 91-596, 84 Stat. 1590 (1970). Gasoline retail regulation under that act is described in chapter 28, pp. 1755–57.

[38] This history is taken from 48 *Fed. Reg.* 57202 (December 28, 1983). Also see "OSHA Details Proposed Rig Safety Regs," *OGJ*, January 2, 1984, pp. 43–44.

[39] Pub. L. 72-2, 47 Stat. 5 (1932).

[40] Jesse H. Jones, *Fifty Billion Dollars: My Thirteen Years with the RFC (1932–1945)* (New York: Macmillan,

During World War II, the Defense Plant Corporation and the RFC actively financed pipelines and oil-carrying water vessels, as well as assisted refineries to convert from peacetime product slates to wartime production. In the postwar period, the RFC regained autonomy and continued to make loans to politically favored enterprises until, amid controversy, its small-business lending functions were transferred to the newly created Small Business Administration on July 30, 1953.[41] Small Business Administration loans to the petroleum industry were concentrated in gasoline marketing.[42]

Export-Import Bank

The Export-Import Bank was created by Executive Order 6581 on February 2, 1934, to "facilitate exports and imports and the exchange of commodities between the United States and other nations or the agencies or nationals thereof." The bank could borrow, lend, guarantee debt, and "do a general banking business" with its $700-million budget.

The purpose of the Ex-Im Bank was to stimulate exports to create jobs and promote recovery. Imports, on the other hand, were discouraged by the Smoot-Hawley Tariff Act of 1930 and other protectionist legislation. The mercantilist notion of a favorable balance of trade, dollar exports exceeding dollar imports, —an inappropriate goal in its own right, was contradicted by reduced export demand due to import restrictions, which sent fewer dollars abroad for foreigners to buy U.S. goods. Recovery, furthermore, was diminished by taxes, intended to fund the Export-Import Bank, that reduced private-sector demand.

After World War II, recovery was no longer deemed necessary by the political establishment, and Ex-Im Bank lending became part of the nation's foreign policy and foreign aid programs. In 1945, its capital stock was increased to $1 billion, the first of many increases associated with ever-expanding foreign commitments, both military and economic, to counter perceived threats from Soviet communism.[43] As of 1983, Ex-Im Bank commitments were limited to $58.75 billion with a mix of $33.75 billion in direct loans and $25 billion in guarantees and insurance. Commitments as of September 30, 1983, totaled $23.7 billion in loans, $6.7 billion in guarantees, and $7.8 billion in insurance.[44]

A government-industry partnership has been behind more than $100 billion in export support given by Ex-Im Bank as of October 1982.[45] The government's goal has been to help countries deemed friendly to the United States; the exporters' goal has been to increase demand for domestic products to make profits. Two private consortiums have been formed to act as a liaison between individual exporters and Ex-Im Bank. The Private Export Funding Corporation, founded in 1970 and owned by fifty-four commercial banks and several other groups, pays a fee to Ex-Im Bank for a $50-million revolving line of credit and full loan guarantees for approved credits. The Foreign Credit Insurance Association, founded in 1961 and owned by fifty leading U.S. insurance companies, insures foreign receivables against commercial risks. Ex-Im Bank, in turn, insures political risks and reinsures part of the commercial risks. Much, if not all, of this activity involves risks that are unacceptable to the private sector.

Major areas of Ex-Im Bank subsidization are electric power, aircraft, construction equipment, and communications. Beginning in the 1940s, loans were made to foreign countries to purchase U.S. equipment, including oil rigs, refinery parts, and pipeline

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1951), p. 234.

41 Pub. L. 83-163, 67 Stat. 230 (1953).

42 See chapter 25, pp. 1521–22.

43 Pub. L. 79-173, 59 Stat. 526 (1945).

44 Export-Import Bank of the United States, *Fiscal 1983 Annual Report* (Washington, DC: GPO), p. 27.

45 *Exim News*, October 14, 1982, p. 4.

equipment. Some of these loans were particularly controversial because of the expropriations of property of U.S. oil companies by beneficiary governments. Mexico's nationalization of U.S. oil properties in 1938 was followed by a loan of $30 million for roads in 1941, a $10-million refinery loan in 1943, and a $150-million loan for general development in 1950. A 1946 loan of $5.5 million to Bolivia for production, refining, and pipeline expenditure followed nationalization a decade before. A $125-million loan to Argentina in 1950 for general expenditure came just thirteen years after the oil industry had been taken over by authorities. A $300-million loan was made in 1950 to a thoroughly corrupt Brazilian government that would nationalize U.S. oil firms in 1964.[46]

More recent petroleum-related loans have gone to Mexico ($80 million in 1972), Burma ($2.8 million in 1971), Norway ($68 million in 1973), Taiwan ($11.3 million in 1973), Israel ($13.5 million in 1975), Britain ($71 million in 1975), Chile ($203 million in 1975), Norway ($44 million in 1975), Ivory Coast ($88 million in 1980), Brazil ($29 million in 1982), Indonesia ($333 million in 1982), New Zealand ($99 million in 1982), Cameroon ($54 million in 1982), and Angola ($45 million in 1983).[47] A $456-million loan and loan guarantee to New Zealand involved such well-known companies as Mobil and Phillips and sixteen major U.S. oil-field supply companies.[48] Many other industry leaders, such as Shell, Chevron, Getty, Occidental, and British Petroleum, have been beneficiaries of Ex-Im Bank largesse. Total oil and gas credits between 1975 and 1983 came to $3.5 billion. Other recipients of oil and gas loans were Algeria,[49] France, Hong Kong, Panama, Portugal, Yugoslavia, Belgium, Cayman Islands, Liberia, Japan, Spain, Peru, Romania, Singapore, Egypt, India, Sweden, and China.

Securities Regulation

The lifeblood of the free market is savings and investment that underwrite the capital structure of the economy. Corporate finance with bonds and stocks is a major part of the system. Primary issues of stocks and bonds are handled by investment banking houses, while secondary trading is conducted on stock exchanges by means of buy-sell orders emanating from stock brokerage houses located across the country.

In the early nineteenth century, the New York Stock Exchange emerged as the major financial center in the United States. Many other regional exchanges also evolved to meet the financing and investment needs of clients. In the 1860s, oil stocks joined railroad securities and other securities on the local exchanges and in New York. For decades, little more than "let the buyer beware" governed investor decisions; in the next century, state regulation and then federal regulation would add "let the seller beware." This latter development is explored below with particular reference to oil and gas exploration and production.

Early Promotion and Regulation

Oil drilling, always a speculative business, was even more so in the years before scientific prospecting. Oil "smellers" and "divining rod" techniques made wildcatting a true gamble. If exploration was a gamble, investing in exploration companies was also. With every gusher, many oil companies were formed that descended upon the investing public with alluring promises of wealth. With little known about the location of undiscovered oil deposits, and

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[46] See Edward W. Chester, *United States Oil Policy and Diplomacy: A Twentieth Century Overview* (Westport, CT: Greenwood Press, 1983), pp. 131, 135, 137, 174, 189.

[47] Compiled from various Export-Import Bank annual reports from 1975 until 1983.

[48] *Exim News,* October 14, 1982, p. 1.

[49] Controversy surrounding Algerian liquefied natural gas imports made possible by Ex-Im Bank assistance is described in chapter 15, p. 930.

with high costs for information about company track records and relevant factual data, a fine line existed between speculation and material deceit in some cases.

"Speculation and fraudulent promotions," John Ise declared in 1926, "have been rampant in almost every oil field discovered since 1859."[50] There were a variety of "quick money" teasers in promotional literature, and sales pitches ranged from "Come with me to the golden lanes of wealth where the oil of old Mother Earth pours forth its riches" to "We can't miss the oil."[51] There was also unambiguous fraud—willful misinformation on acreage, past production, profits and dividends, and assets and liabilities—as well as false incorporations and violated written guarantees.[52] This was the province of common-law remedies, and some state agencies and federal agencies such as the Post Office, Justice Department, and Federal Trade Commission (FTC) became involved after the turn of the century.

Because of strong feelings about speculative losses and the magnitude of the problem in petroleum and other areas, states enacted blue-sky laws, which, in addition to prohibiting fraud, often required dealers to obtain licenses and register securities before their sale. Kansas passed the first law in 1911, and by 1933, all states except Nevada had followed suit.[53] Municipalities such as San Diego and Long Beach, California, passed stricter regulations.[54] On the private side, establishment of better business bureaus—one in Tulsa, Oklahoma, focused on oil securities—was one response; security standards pushed by the American Petroleum Institute and the National Vigilance Committee of the Associated Advertising Clubs were other responses.[55]

The public and private problem was summed up by Ise.

> The loss of hundreds of millions of dollars in unwise and fraudulent oil ventures has meant much more than the loss of this money. It has meant a great loss of confidence in all kinds of securities, not only legitimate oil stocks and bonds, but stocks and bonds of all kinds. Some of the large investment houses have often complained of the flow of money into worthless oil stock, not only because it meant so much of a subtraction from the funds available for productive uses, but because it made many people suspicious of all kinds of securities.[56]

While Ise's argument, thoroughly documented with examples, is intended to substantiate market failure and a need for regulation, the most obvious solution was a more efficient rendering of the common law's prohibitions and penalties against willful deceit. Beyond this, regulation entered the quagmire of trying to save investors from themselves. Investors make mistakes (sustained speculative losses), but investors as profit maximizers can be expected to learn from their mistakes.

In a business in which dry holes are far more numerous than oil strikes, many exploration investments can be expected to be barren. Today's development-well drilling programs have

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[50] John Ise, *The United States Oil Policy* (New Haven, CT: Yale University Press, 1926), p. 187.

[51] John Ise, *The United States Oil Policy*, p. 196.

[52] John Ise, *The United States Oil Policy*, p. 195.

[53] Clair Wilcox, *Public Policies toward Business* (Homewood, IL: Richard D. Irwin, 1966), p. 616. Wilcox, a fiercely pro-regulation economics professor at Swarthmore (1927–1968), had been a leader during World War II of the Office of Price Administration. Kansas law in its first year was used to block 1,400 of 1,500 applications to sell the stock of "foreign" (i.e., out-of-state) firms. This left state investors primarily with in-state issues from which to choose. Gilbert E. Brach, "The Blue Sky Law," *Marquette Law Review* 3, no. 3 (1919): 143.

[54] John Ise, *The United States Oil Policy*, p. 200.

[55] John Ise, *The United States Oil Policy*, pp. 199–200. The National Vigilance Committee would become the National Better Business Bureau with offices in all major U.S. and Canadian cities.

[56] John Ise, *The United States Oil Policy*, p. 198.

improved the odds considerably, but yesterday's high percentage of wildcat wells made oil investments wildcats also. Imposing entry costs on security sales only narrowed investment have options for consumers and raised expenses for security dealers to recover from their clients. Outside of fraud, separating "good" investments from "bad" investments by state commissions prior to maturity, was itself speculative.

Early Federal Activity

During World War I and in the postwar period, federal authorities intervened in the securities market, particularly that for oil and gas production. During the war, as mentioned in chapter 5, the Capital Issues Committee of the Treasury Department blocked new issues by prospective production firms because of alleged wartime scarcities.[57] After the war, the Capital Issues Committee continued its campaign against exploration and production securities because their popularity hurt the market for Liberty Bonds and war savings stamps. Explained Secretary of the Treasury Carter Glass:

> The offering of investments to the public competes with the offering of Government securities, and, as you are aware, the Treasury proposes to invite the public to subscribe to a very large issue of securities shortly. Stocks and securities of a legitimate investment character compete with the Government, but not nearly so much as highly speculative stocks.... The operations of the Government in the past, in endeavoring to induce persons of all classes to purchase Government bonds, have, to a large degree, brought into being a very large and new class of investors who are without experience or knowledge to guide them wisely.... But the very efforts of the Government agents, in persuading such persons to become investors, have prepared the way for promoters to place many worthless stocks. The result has been that those promoters have already displaced a very large amount of Government bonds by taking them in exchange for stock, and to such an extent as to undo the work which is so essential for the success of the Government's financial operations, because the Government cannot expect successful flotation of its own securities, or the preservation of a proper price therefor in the financial market, unless the great number of small buyers continue to hold their bonds.[58]

Pleas to the FTC by the Treasury Department to "protect" government bondholders by regulating securities as "articles of interstate commerce" did not succeed. This would wait until the New Deal.

New Deal Regulation

Federal security regulation, it is popularly explained, was a necessary outgrowth of ineffectual state regulation. Stated Clair Wilcox:

> [State] laws have afforded scant protection to investors. The funds provided for their enforcement have rarely been adequate to finance a real analysis of the statements that are filed. Little effort has been made to censor security prospectuses, the only documents that buyers see. The laws do not prevent mismanagement of corporations, once their securities have been sold. …

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[57] See chapter 5, pp. 228–29.

[58] "Federal Government Is to Take Action," *OGJ*, March 14, 1919, p. 46. According to Gilbert Brach, "It has been estimated in responsible quarters that as much as $400,000,000 of Liberty Bonds placed with investors, have already fallen into the hands of dishonest brokers in the exchange for wildcat oil or mining issues." Gilbert E. Brach, "The Blue Sky Law," p. 142.

> Many transactions escape control, moreover, since the jurisdiction of state authorities does not extend to sales across state lines. It remained for Congress to make the first effective provision for the protection of investors when it enacted the securities laws in the early years of the New Deal.[59]

It took more than "failed" state regulation to pave the way for federal controls; it took an unprecedented securities crash in October 1929 and failed recovery to give government a mandate to intervene.[60] A lengthy investigation by the House Committee on Interstate and Foreign Commerce identified many 1920s bull-market practices as abuses and hinted that the security collapse could have been avoided with proper regulation.[61] "In the opinion of many New Dealers," concluded Thomas McCraw, "this unfettered trading on thin margins represented a primary cause of the stock market crash and the depression that followed."[62] Security practices, as it were, became "whipping boys" for the Great Depression that was the necessary aftermath of a speculative boom fueled by monetary expansion by the Federal Reserve (founded 1913).[63]

The Federal Securities Act of 1933, similar to state blue-sky laws, required full disclosure on security issues issued through the mails or sold interstate to prevent fraud and misrepresentation.[64] However, fraud was not the primary intent. House sponsor Sam Rayburn (D-Tex.) admitted, "This bill is not so much a response to the frauds of criminals as it is to the reticence of financiers."[65] Administration was assigned to the FTC, which approved registrations conforming to the act. Penalties accrued for "an untrue statement of a material fact or [an] omitted ... material fact required to be stated therein or necessary to make the statements therein not misleading."[66] If a stock price fell as the result of a misstatement or omission, the buyer could sue for the difference upon sale. Although "of secondary importance in a comprehensive program of social control over finance," as noted by regulatory proponents William Douglas and George Bates, the act was an entering wedge that other New Deal legislation would buttress.[67] What the act did require was detailed, accurate reams of information that bared all financial secrets of a firm. But security flotations were not significantly restricted, and the investor was not saved from himself.

The Securities Exchange Act of 1934 was passed to "provide for the regulation of securities exchanges and of over-the-counter markets operating in interstate and foreign

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[59] Clair Wilcox, *Public Policies toward Business*, p. 616.

[60] In the first years of the Great Crash, stocks and bonds listed on the New York Exchange fell from $138 billion to $45 billion. Clair Wilcox, *Public Policies toward Business*, p. 616. Huge paper losses were also registered by investment trusts, public-utility holding companies, and nonlisted bonds.

[61] See William Douglas and George Bates, "The Federal Securities Act of 1933," *Yale Law Journal* (December 1933): 171.

[62] Thomas K. McCraw, *Prophets of Regulation* (Cambridge, MA: Harvard University Press, 1984), p. 180.

[63] Monetary inflation and speculation were directly related. A vivid example was given by economist Percy Greaves: "In 1926, the banks could lend money on stock at 5 percent plus, and then discount eligible loans at 4 percent at their Federal Reserve Banks.... As a result, stock market prices started to move up. They moved up faster and faster as time passed…. [O]ne major New York bank was reported as borrowing $115 million from its Federal Reserve Bank on fifteen-day notes and lending it on stock exchange securities at from 6 percent to 7 percent." Percy L. Greaves Jr., *Understanding the Dollar Crisis* (Boston, MA: Western Islands, 1973), p. 210. On monetary inflation during the 1920s and the artificial boom, see Murray Rothbard, *America's Great Depression*, Part II.

[64] Pub. L. 73-22, 48 Stat. 74 (1933). The act was also called the Truth in Securities Act.

[65] 77 *Cong. Rec.* 2918 (May 5, 1933), quoted in Thomas K. McCraw, *Prophets of Regulation*, p. 173. The story of James Landis, who was the principal author of the 1933 law, is found in Thomas K. McCraw, *Prophets of Regulation*, chap. 5, "Landis and the Statecraft of the SEC," pp. 153–209.

[66] Pub. L. 73-22, 48 Stat. 74, 79–80 (1933).

[67] William Douglas and George Bates, "The Federal Securities Act of 1933," p. 171.

commerce ... to prevent inequitable and unfair practices on such exchanges and markets."[68] The Securities and Exchange Commission (SEC) was established to assume authority from the FTC. "Any manipulative or deceptive device or contrivance" to inflate stock prices was prohibited.[69] Corporate insiders were forbidden to make short-term stock trades. Brokers and dealers were required to register with the SEC and follow certain rules. Margin requirements, with the Federal Reserve Board in charge, were set at 55 percent of the stock's current price or its lowest price within thirty-six months to "preven[t] the excessive use of credit for the purchase or carrying of securities."[70] Authority to fix broker prices and set other rules was prescribed. Although the 1933 act was limited to new issues, the 1934 act governed securities in circulation.

The primary goal of the 1934 act, in the words of the first SEC chairman, Joseph Kennedy, was to "re-create, rebuild, restore confidence" to end the depression.[71] Dedicated, talented young New Deal lawyers, who viewed economic problems as psychological rather than as crises engendered by government intervention, produced pages of disclosure requirements and restrictions on stock transaction practices, which were futile. Economic recovery would not come, and the economy was saddled with another layer of regulation that impeded the flow of much-needed capital for business.

A third New Deal act that contributed to "social control over finance" was the Public Utility Holding Company Act of 1935 (Wheeler-Rayburn Act), which placed security sales of major electric and gas companies under SEC authority.[72] This is examined in chapter 15.[73]

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Subsequent statutes, such as the Maloney Act of 1938,[74] the Investment Company Act of 1940,[75] and the Securities Acts Amendments of 1964,[76] extended control to the over-the-counter securities market and investment houses, strengthened the cartelization of the securities profession by limiting entry and preserving their rate-setting powers, and expanded SEC power over broker-dealer activities. Partial regulation, which began in 1933, was now comprehensive.

Evaluation

Far from its idealistic beginnings, securities regulation created a cartel for private industry

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[68] Pub. L. 73-291, 48 Stat. 881 (1934). Security was defined to include "any fractional undivided interest in oil, gas, or other mineral rights."

[69] Also forbidden was "false or misleading appearance of active trading." Pub. L. 73-291, 48 Stat. 881, 889.

[70] Pub. L. 73-291, 48 Stat. 881, 886. The Federal Reserve Board was given responsibility for rules governing purchase of stock on credit.

[71] Joseph P. Kennedy, chairman, Securities and Exchange Commission, Address at the Meeting of the Boston Chamber of Commerce, November 15, 1934, p. 10, quoted in Thomas McCraw, *Prophets of Regulation*, p. 183.

[72] Pub. L. 74-333, 49 Stat. 803 (1935). "Social control" could be politically wielded. For a sobering story of the SEC persecution and federal criminal prosecution of an independent oil man critical of Petroleum Administration Board head Harold Ickes, see J. Edward Jones, *And So—They Indicted Me! A Story of New Deal Persecution* (New York: J. Edward Jones Publishing, 1938). The majority decision of the U.S. Supreme Court likened the case to the "intolerable abuses of the Star Chamber" Jones v. SEC, 298 U.S. 1, at 28.

[73] See chapter 15, pp. 862–63.

[74] Pub. L. 75-719, 52 Stat. 1070 (1938).

[75] Pub. L. 76-768, 54 Stat. 789 (1940).

[76] Pub. L. 88-467, 78 Stat. 565 (1964).

in the name of protecting the "public interest." The first crack in regulation came on December 5, 1968, when brokers were allowed to offer volume discounts from their regular per-share brokerage fee.[77] A more comprehensive move toward deregulation came with the Securities Acts Amendments of 1975.[78] The SEC was instructed to abrogate rules reducing competition, and "no national securities exchange may impose any schedule or fix rates of commissions, allowances, discounts or other fees to be charged by its members."[79] The New York Stock Exchange cartel was weakened, but licensing still restricted the supply of security traders, and formal security registration ensured a fixed business. The rise of discount brokers in the 1980s was attributable to increased competition allowed by the 1975 amendments, but from the viewpoint of the free market, unnecessary cost, restricted entry, and overpricing of transactions remain. Fundamental reform would weaken or eliminate mandatory disclosure for public companies, requirements for security offerings, and restrictions on securities trading. Private standards with an eye toward investor goodwill and confidence would substitute.

Effects on the Oil and Gas Industry

After several years of observing the new federal regulation, the National Conference of Business Paper Editors concluded that "compliance with the provisions of the Securities Act has handicapped financing and increased the expense to the [oil] companies."[80] The problem inherent in state and federal securities regulation was stated by a former SEC attorney: "The hazardous and speculative nature of oil exploration, with the odds against any one venture, has made it especially difficult to design legislation adequate to protect the public from fraudulent promotions without unduly hindering bona fide efforts to finance exploratory operations."[81] By July 20, 1935, the deadline for security registration for the national securities exchanges, more than 100 oil and gas companies had registered.[82] Once-confidential information, such as stock holdings of principal officers, was now public information to the chagrin of many of those individuals.

In June 1936, pursuant to one of the SEC's first important administrative pronouncements, offering sheets had to be submitted and commission approval received for all gas and oil royalty sales prior to solicitation. Of the first batch, over 90 percent were amended or withdrawn after receiving initial disapproval.[83] The extensive questionnaire, which covered all aspects of the properties, was aimed at oil royalty "racketeers" who continued to be of great concern to regulators and legitimate business operators.

Later administrative regulation continued to expand reporting requirements that rationed drilling programs in an attempt to save investors from themselves. After investor complaints in 1976–77, the SEC issued more disclosure requirements, which to independents were "more mire in the regulatory swamp."[84] This increased the long-standing practice of private placements to bypass the expense and delay of public offerings. Life insurance companies

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[77] Hans R. Stoll, "Regulation of Securities Markets: An Examination of the Effects of Increased Competition," in U.S. Senate, Committee on Governmental Affairs, appendix to vol. 6 of *Study on Federal Regulation* (Washington, DC: Government Printing Office, 1978), p. 600.

[78] Pub. L. 94-29, 89 Stat. 97 (1975).

[79] Pub. L. 94-29, 89 Stat. 97, 107. For an initial examination of stock exchange broker commissions, see Alfred Kahn, *The Economics of Regulation*, 2 vols. (New York: John Wiley & Sons, 1971), vol. 2, pp. 193–209.

[80] "Securities Act of 1933 Appraised As to Its Effect on Financing," *National Petroleum News*, May 29, 1935, p. 25. Cited hereafter as *NPN*.

[81] Julian Meer, "Oil Finance and the Securities Laws," *Texas Law Review* (June 1951): 885.

[82] "Securities of 100 Oil Companies Registered With S.E.C.," *NPN*, July 24, 1935, p. 19.

[83] "Saving Oil Suckers," *Business Week*, August 15, 1936, p. 12.

[84] "Securities Crackdown Hits Drilling Deals," *OGJ*, May 1, 1978, p. 36.

were one major source of funds for private placements when direct negotiations sufficed in an unregulated environment.[85]

The increased expense, delay, and uncertainty resulting from securities regulation in the oil- and gas-drilling industry were mitigated by greater-than-average reliance on internal financing. Such reinvestment resulted from favorable tax policies—intangible-drilling-cost expensing coupled with the depletion allowance, in particular[86]—that lowered the industry's effective tax rate below that of other industries until the 1970s. This conclusion, however, has the caveat that preferential tax treatment resulted in overproduction and lower wellhead prices.

Accounting Theory and Practice

"The fundamental purpose of accounting," stated Arthur Dewing, "is to determine whether or not the business is realizing a profit."[87] The practice of accountancy was not invented but evolved over centuries as certain bookkeeping methods were found to best provide a representative financial picture of business firms.[88]

In the United States, accounting emerged as a distinct professional practice in the 1870s, and in 1882, the first professional accounting association was established in New York, the financial mecca of the country.[89] Although its original purpose was educational and scientific, its goals would shift to the political arena to achieve for its members the status and income that free-market conditions alone would have allowed. From this beginning, regulation would extend into other areas of financial accounting and culminate, as far as the petroleum industry was concerned, in a 1970s debate over the estimation of hydrocarbon reserves.

State Licensing

In 1894, the American Association of Public Accountants, chartered in 1887 by New York State, approached the New York legislature about establishing educational requirements under the Regents of the University of the State of New York. Several tries later, the state passed An Act to Regulate the Profession of Public Accountants on April 17, 1896. Henceforth, only a certificated individual could be "styled and known as a Certified Public Accountant" (CPA).[90]

A board of examiners was chosen, tests were given, and in 1898 the first prosecution of a non-certified individual advertising for-hire services as a CPA occurred.[91] Pennsylvania followed with certification in 1899 and was joined by Maryland in 1900, California in 1901, and Illinois and Washington in 1903. By 1913, over thirty states had passed CPA laws and established chapters in the American Association of Public Accountants. By 1921, all states

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[85] Arthur Stone Dewing, *The Financial Policy of Corporations*, 5th ed., 2 vols. (New York: Ronald Press, 1953), vol. 2, pp. 1112–14.

[86] See Harold S. Bloomenthal, "Securities Regulation of Oil and Gas and Mineral Transactions," *Third Annual Rocky Mountain Mineral Law Institute* (New York: Matthew Bender, 1957), p. 71.

[87] Arthur Stone Dewing, *The Financial Policy of Corporations*, 5th ed., vol. 1, p. 509. This includes not only the income statement, which reveals profits during a period, but the balance sheet and subsidiary financial statements, which indicate the net worth of a company or the profit if sold.

[88] Arthur Stone Dewing, *The Financial Policy of Corporations*, vol. 1, p. 515.

[89] Wilmer L. Green, *History and Survey of Accountancy* (Brooklyn, NY: Standard Text Press, 1930), p. 74.

[90] The act is reprinted in James Don Edwards, *History of Public Accounting in the United States* (East Lansing: Michigan State University Press, 1960), p. 69.

[91] James Don Edwards, *History of Public Accounting in the United States*, pp. 72–73.

had made accountancy a licensed profession.[92] Henceforth, the goal of state CPA organizations would be to keep entry-level standards high. The "public interest" in competent accountants fronted the effort; the more narrow motivation was the income and status to be gained from restricted membership.

Federal Influence

Federal licensing was never seriously considered because accounting was recognized as an intrastate matter. An important federal contribution, however, was to increase the demand for specialized bookkeeping through regulation and reporting requirements. Public-utility regulation created the Uniform System of Accounts that became a CPA-dominated matter. War contracts beginning during World War I were directed toward certified practitioners. Federal taxation of business income (1909), personal income (1913), excess profit (1917), and well sales (1918) created lucrative areas of tax law that CPAs captured. In 1924, the U.S. Board of Tax Appeals ruled that, along with certified lawyers, only certified accountants could come before the board.[93]

The capstone of regulatory-induced demand was the federal securities acts of the 1930s, which purported to better inform the investing public of the risks and prospects of stock offerings and the condition and prospects of publicly traded firms. This involved disclosure of financial information and mandatory audits for larger firms, which, in turn, required that, per SEC instruction, the public be properly informed of accounting alternatives. This gave the SEC a role in what hitherto had been predominately a professional, private concern—the formulation and implementation of accounting principles.

The role of the SEC would be important. In theory and practice, financially describing a business in a market in flux offers a range of accounting options that can be politically modified. This began in 1936 when the American Accounting Association, composed primarily of academic accountants, launched a march toward monolithic accounting by publishing *A Tentative Statement of Accounting Principles Underlying Corporate Financial Statements*.[94] Two years later, the American Institute of Accountants (now the American Institute of Certified Public Accountants) created a Committee on Accounting Procedure to "narro[w] the areas of differences and inconsistencies" not only in accounting theory (as the American Accounting Association had begun to do) but in practice as well.[95] Sanctioned by the SEC and composed of government-licensed accountants, the AICPA through its Committee on Accounting Procedure (replaced by the Accounting Principles Board in 1959) had authority to issue "bulletins" (later APB "opinions") that had the status of *generally accepted accounting principles* (GAAP).[96]

The extent of SEC involvement with early efforts to impose uniform accounting is not altogether clear since market forces were also working toward standardization. Before 1964, in any case, persuasion and scholarly debate were the main tools used to induce practitioners to conform with GAAP. But with Rule 203, issued in October 1964, the AICPA redefined the accountants' rule of ethics to require conformity with GAAP "unless the member can demonstrate that due to unusual circumstances the financial statements would otherwise have

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[92] James Don Edwards, *History of Public Accounting in the United States*, pp. 72, 109–10.

[93] James Don Edwards, *History of Public Accounting in the United States*, p. 104.

[94] See Thomas Henry Sanders, Henry Rand Hatfield, and Underhill Moore, *A Statement of Accounting Principles* (New York: American Institute of Accountants, 1938), pp. 4–6.

[95] Glenn A. Welsch et al., *Intermediate Accounting*, 5th ed. (Homewood, IL: Richard D. Irwin, 1979), p. 6.

[96] From its inception until 1959, the Committee on Accounting Procedure issued bulletins; from 1959 until 1973, the Accounting Principles Board issued opinions. Both were considered GAAP.

been misleading."[97] The force behind the ruling was that the "member" was a licensed practitioner who could be decertified if he did not follow professional ethics. Through the indirect use of government, monolithic accounting could be institutionalized.

The next government thrust into accounting, leading to what Thomas Taylor called "the politicization of a profession," occurred when the SEC, along with some accountants, became dissatisfied with the quality and quantity of the opinions of the Accounting Principles Board.[98] At times, the SEC prevented opinions becoming GAAP by refusing to back them. This led to the creation of the independent Financial Accounting Standards Board (FASB) in 1973, which received top sanction from the SEC to issue "statements" and "interpretations" for the profession to follow.

With the aid of an advisory council, the seven-member FASB, much like a formal regulatory body, issues final rulings. After a proposal of change is distributed, a public hearing is held after which an exposure draft is circulated. Then, after further comments, a final opinion, which automatically becomes GAAP, is reached. The SEC, on the other hand, directly influences accounting practices through reporting requirements. Regulation S-X, as amended and supplemented by the SEC's Accounting Series Releases, dictates how public firms report financial data and is augmented by special SEC "releases" and "staff accounting bulletins." Through these means and the quasi-governmental FASB, the government's voice in accounting theory and practice is heard.

Oil and Gas Accounting Controversies

The quest for monolithic accounting—along with new mandatory reporting requirements—reached a new pitch with federal oil and gas regulation in the energy-crisis decade of the 1970s. At issue were (1) a uniform method of disclosing on financial statements intended for investors the financial impact of drilling operations and (2) the compilation of broad financial and supply statistics to aid regulatory efforts.

Preceding the onslaught of federal petroleum regulation in the 1970s, a debate developed in the industry and accounting profession, not to mention the SEC, over the proper method of classifying costs associated with unsuccessful drilling. Traditionally, companies expensed dry-hole (noncommercial deposit) costs and capitalized costs associated with discoveries. This became known as the *successful efforts* method. In the 1960s, a second method came into use and received GAAP certification. Under the *full-cost* method, operators would capitalize all drilling expenses, generally on a company-wide basis, on the reasoning that dry holes were part of the incurred cost of discoveries in the risky world of petroleum exploration. Dry-hole costs would then be amortized against revenue from extractions, subject to the limitation that costs not exceed revenues.

Use of full costing became popular with almost all of the smaller independent producing firms. The attraction was earnings and net worth stabilization. By postponing expenses until revenues were present, higher profits and net worth for the current period to better attract investor interest in upcoming drilling programs. Unless the sophisticated investor discounted full costing to equate it with successful efforts, capital costs appeared to be lower for these firms. The penalty, however, was higher taxes in a present-value sense. Major integrated companies, on the contrary, preferred successful efforts to full costing to minimize their tax obligations in a present-value sense. (Texaco, one of the few exceptions, switched to successful efforts in 1976.) Their capital requirements could be met by pledging fixed assets behind bank loans or issuing debentures and stock on the strength of historical earnings.

In 1964, the first sign of discontent over the dual option appeared when the AICPA

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[97] Glenn Welsch, *Intermediate Accounting*, p. 9.

[98] Thomas C. Taylor, "The Politicization of a Profession," *Policy Report* 2, no. 6 (June 1980): 4–7.

commissioned a study on the alternative cost systems and recommended the better of the two.[99] Issued in 1969, the report recommended successful efforts. In a follow-up study, the AICPA's Committee on Extractive Industries reached a similar verdict and recommended that the field, not the company, be recognized as the cost center.

Along with the accounting profession, the Federal Power Commission (FPC) expressed its growing concern about the dual options. In late 1970, the commission, pursuant to its authority to regulate natural gas, issued a proposal to require full costing by natural-gas companies. After prolonged debate, with participation by the AICPA's Accounting Principles Board, the FPC issued Order 440 on November 5, 1971, that required natural-gas producers to use full costing for leases acquired after October 6, 1969, with each country as the cost center.[100] This contradicted the profession's recommendation of successful efforts.

The debate resumed in 1973 when the Ad Hoc Committee on Full Cost Accounting was formed, primarily by integrated companies, to push for successful efforts. A technical study published a year later concluded that successful efforts more faithfully served investor needs than did full costing.

With the developing energy crisis and growing public suspicion about industry practices, a new era of federal regulation of accounting for exploration and production was set to begin. On December 22, 1975, President Gerald Ford signed the Energy Policy and Conservation Act, which empowered the SEC to

> prescribe rules applicable to persons engaged in the production of crude oil or natural gas, or make effective by recognition, or by other appropriate means indicating a determination to rely on accounting practices developed by the Financial Accounting Standards Board, if the Securities and Exchange Commission is assured that such practice will be observed by persons engaged in the production of crude oil or natural gas to the same extent as would result if the Securities and Exchange Commission had prescribed such practices by rule.[101]

The same section also required a compilation of various accounting information on exploration and production to create a national energy database. The act required each company to submit:

> (1) The separate calculation of capital, revenue, and operating cost information pertaining to—
>
> (A) prospecting,
> (B) acquisition,
> (C) exploration,
> (D) development, and
> (E) production,
>
> including geological and geophysical costs, carrying costs, unsuccessful exploratory drilling costs, intangible drilling and development costs on productive wells, the cost of unsuccessful development wells, and the cost of acquiring oil and gas reserves by means other than development. Any such calculation shall take into account disposition of capitalized costs, contractual

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[99] This discussion is taken from *Accounting: Professional Standards*, 3 vols. (Chicago, IL: Commerce Clearing House, 1979), vol. 3, pp. 10,477–88; and James Haverson, "An Analysis of the Oil and Natural Gas Reserve Reporting Problem," *Proceedings of the Twenty-Seventh Annual Institute on Oil and Gas Law and Taxation* (New York: Matthew Bender, 1976), pp. 121–27.

[100] 46 FPC 1148 (November 5, 1971).

[101] Pub. L. 94-163, 89 Stat. 871, 958 (1975).

arrangements involving special conveyance of rights and joint operations, differences between book and tax income, and prices used in the transfer of products or other assets from one person to any other person, including a person controlled by, controlling, or under common control with such person.

(2) The full presentation of the financial information of persons engaged in the production of crude oil or natural gas, including—

(A) disclosure of reserves and operating activities, both domestic and foreign, to facilitate evaluation of financial effort and result; and
(B) classification of financial information by function to facilitate correlation with reserve and operating statistics, both domestic and foreign.

(3) Such other information, projections, and relationships of collected data as shall be necessary to facilitate the compilation of such data base.[102]

Never before had accounting practice been as meticulously prescribed by law. Before, the SEC role in accounting had been complementary and cooperative, although its ultimate authority was not in doubt. Now, the SEC—and all the special interests involved with government energy policy—became the driving force behind the FASB and the profession in general. The impetus for government intervention was less a concern for unscrupulous investors than it was to provide an informational foundation for the federal government's activist energy program.

Almost immediately, the FASB began deliberations over the changes mandated by the EPCA. The SEC, the Federal Power Commission, the Federal Energy Administration, the Oversight and Investigations Subcommittee of the House Committee on Interstate and Foreign Commerce, the General Accounting Office, and the Cost Accounting Standards Board were involved. During the debate, several full-cost companies withdrew or canceled securities offerings.[103] The final report, issued December 22, 1977 (FASB 19), controversially mandated successful efforts instead of full-cost accounting for the fiscal years beginning after December 15, 1978. This was reversed nine months later by the SEC in Accounting Series Release (ASR) 253, which returned full costing to GAAP status. To the embarrassed FASB, this was a stark reminder that power over accounting rules lay not within the profession but within government. In February 1979, FASB 25 was issued to rescind FASB 19.

Controversy over whether to expense or capitalize dry-hole costs was joined by the question of whether a third alternative—to redefine income and subtract drilling costs as incurred—was better. On March 23, 1976, the SEC amended Regulation S-X with ASR 190 to require larger energy companies to disclose inventories and productive capacity and estimate oil and gas replacement cost in financial reports filed with the commission for fiscal years ending after December 24, 1976. Better accounting under inflationary conditions and better recognition of the financial worth of proven reserves, the chief asset of producing companies, were the reasons given for regulation. This began *reserve-recognition accounting* (RRA), also called discovery-value accounting and current-value accounting.

On May 12, 1976, the SEC released Securities Act Release 5706 that required disclosure of information relating to exploration and production in reports filed with the commission.[104]

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[102] Pub. L. 94-163, 89 Stat. 871, 959 (1975).

[103] "O'Leary Enters Accounting-Methods Fray," *OGJ*, October 24, 1977, p. 71.

[104] For later negative industry reaction, see *Forbes*, September 17, 1979, pp. 188, 192.

ASR 253, released by the SEC on August 31, 1978, then suggested that historical cost be replaced with an accounting method based on proven-reserve valuation.

On September 24, 1979, RRA became mandatory as supplemental disclosure for all significant oil- and gas-production companies for the fiscal years ending after December 25, 1979. While the production industry flinched, petroleum-engineering companies, such as Keplinger and Associates, Ryder Scott, and DeGolyer and MacNaughton, geared up for unprecedented business.[105] RRA entailed calculating a present value of proven hydrocarbon reserves for inclusion on the asset side of the balance sheet and changes in reserves and associated expenses recorded on the income statement. Under successful efforts and full costing, reserves were valued at cost pursuant to the lower-of-cost-or-market principle, only to be recognized as income when produced and sold, to adhere to the realization-of-revenue principle. To the SEC, however, traditional accounting principles were misleading to investors. This interpretation was controversial. Although RRA was not questioned as a theoretic ideal assuming perfect information, its use in practice was troublesome. Engineering estimates of reservoir quantities are imprecise, particularly when reservoirs are first located. It is not uncommon to have discovery-date estimates as much as 50 percent different from revised estimates five years later.[106] Dollar values assigned to reserves, moreover, are prone to obsolescence because future prices, interest rates (for discounting), technological changes, and withdrawal rates are variable. Wild swings in earnings without actual revenue was another distortion. For these reasons, a final computation could be as misleading as the conservative value derived from time-honored accounting principles. This was partially acknowledged by the SEC with ASR 289, released in February 1981, which abandoned the goal of incorporating RRA into primary financial statements. Stated the SEC:

> The Commission has determined that because of the inherent uncertainty of the recoverable quantities of proved oil and gas reserves, RRA does not presently possess the requisite degree of certainty to be accepted as a primary method of accounting.... [The SEC therefore] no longer considers Reserve Recognition Accounting to be a potential method of accounting in the primary financial statements.[107]

RRA remained mandatory for supplemental disclosures as stated in FASB 33. But the retreat would continue. In October 1981, the SEC again allowed firms to switch to dry-hole cost methods, "if the enterprise justifies the use of an accepted accounting principle on the basis that it is preferable." In late 1982, FASB 69 contained new disclosure rules that took RRA off the supplemental statements for fiscal years beginning after December 14, 1982.[108] A controversial episode of government-engineered accounting standards was over.

Evaluation

Government involvement in accounting theory and practice—from state licensing at the turn of the century to New Deal securities regulation in the 1930s to energy-crisis regulation in the 1970s—can be second-guessed. To the extent that government licensing proved more restrictive than professional licensing alone, the accounting profession achieved what could not be achieved in the market—cartelization. Nonmarket barriers may have achieved their purpose of increasing the economic rent accruing to CPAs, but it was done at the expense of

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[105] *Forbes*, September 29, 1980, p. 109.

[106] *Business Week*, June 25, 1979, p. 102.

[107] 46 *Fed. Reg.* 15496 (March 6, 1981).

[108] Disclosure rules for publicly traded oil firms were strict for major companies and relaxed for smaller companies. See "New FASB Disclosure Rules Get Mixed Reaction," *OGJ*, December 20, 1982, pp. 24–25.

consumers. To the extent fewer accountants and higher pricing reduced demand for accounting services, the "public-interest" end of licensing—better accounting services—was contradicted. In the absence of licensing, ratings by private institutions (such as the National Association of Securities Dealers) and reputations would provide information for consumers to use in matching different tasks with different proficiencies. Increased competition in the absence of licensing would reduce accounting costs for all clients, particularly for approximately 7,500 firms with assets over $3 million and 5,000 or more owners; those firms must file audited annual reports.

Like other institutions of the social world, accountancy was "the result of human action but not of human design."[109] This body of knowledge was not invented by a genius or implemented by a series of government directives but was the result of contributions of countless individuals engaged in voluntary business pursuits over time.[110] From this perspective, government intervention in periodic moods of activism, interjecting "social" elements into time-honored accounting principles, seems petty and misplaced. Referring to cost-based regulation and the Uniform System of Accounts, one accountant in the 1940s complained of "a hopeless confusion between accounting principles and regulatory objectives."[111] The conflict expanded to other large publicly owned firms when section 13 of the 1934 Securities Exchange Act opened the door for the SEC to dictate private accounting standards and otherwise regulate security issues. Narrowing the choice of accounting standards to "improve" reporting and to "protect" investors was mistaken in purpose and costly.

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The economy of analysis made possible by uniform accounting has value to the marketplace. Accounting standardization, indeed, was a major project of the American Petroleum Institute in the formative 1924–27 period. Greater confidence can be placed in a *private* decision reached through voluntary consensus than in *forced* uniformity, which bypasses the normal selection process and has proven superficial and distortive. With the past open to varying interpretation and the future marked by unexpected change, there cannot be a singular "scientific" representation of financial information. With different industries, companies within industries, management philosophies, and expectations, there is room for different accounting procedures to convey information. This is where financial and investment specialists perform their market function for the creditor and investor. By forcing monolithic accounting to combat "misrepresentation," the SEC itself misrepresented the heterogeneity of the business world. In Thomas Taylor's estimation:

> [The] bureaucratic approach fails to come to grips with the critical problem of the [dispersed] nature of knowledge in a highly complex society.... It is simplistic to think that accounting information can portray this reality through

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[109] See chapter 1, pp. 13–18.

[110] States Arthur Dewing: "Accounting has had a long and distinguished history. In its present form it was built up by a process of trial and error out of the data supplied by Italian and German merchants carrying on extended local and international trade during the fifteenth, sixteenth, and seventeenth centuries. There was no Newton or Mendel to lay a substantial theoretical basis on which the whole applied edifice could be erected; accountancy arose, slowly, as the formulation into commonly accepted usage of the practical expedients generally recognized by the merchants. Accountancy has remained set in this background ever since." Arthur Stone Dewing, *The Financial Policy of Corporations*, vol. 1, p. 515.

[111] James Dohr, "Power Price Fixing," *Journal of Accountancy* (June 1945): 432. The tension between regulatory objectives and private accounting was verified by Justice Robert H. Jackson, dissenting in *FPC v. Hope Natural Gas Co.*, when he warned against making "a fetish of mere accounting." FPC v. Hope Natural Gas Co., 320 U.S. 591 at 643 (1944).

a single conceptual framework.[112]

The activist role of the SEC and other regulatory agencies in accounting theory and practice in the 1970s is open to further criticism. Forcing disclosure of sensitive information, such as oil and gas reserves, causes rivalrous behavior to be replaced by nonmarket cooperation. Required presentation of reserves as supplemental information on financial statements at the highly inapproximate figure of market value (as opposed to cost) did not eliminate misrepresentation to the investor but added downside risk when estimates were overstated, as sometimes was the case.

Last, a national energy database is not preferable to nonregulation and inadequate (from the regulators' viewpoint) industry statistics. As detailed in other chapters, energy planning in the 1971–80 era not only failed but had no chance of succeeding. The accuracy and availability of data were not crucial to this failure.

With an end to the energy crisis, accounting controversies unique to oil and gas subsided. But as long as there is pervasive regulation of the economy and legislative blessing of "social accounting," controversial FASB pronouncements and SEC intervention remain an uncertainty that the energy industry and its investors cannot escape.

Subsidization of Synthetic Fuels

Pessimism about resources on the part of the federal government inspired subsidies to synthetically produced oil or gas, or both, from coal, shale, tar sands, agricultural and forestry products, and waste materials. The original goal was to meet anticipated domestic oil and gas demand; later, the goal was expanded to ensuring national security by reducing dependence on oil imports. The history of this effort is summarized below.

Early Period

The production of synthetic fuels was a market phenomenon that predated oil-well drilling. Gas manufactured from coal, and to a lesser extent whale oil and rosin oil, was the "largest and fastest-growing branch of the illuminating industry in America" in the 1850s.[113] By 1860, an estimated 400 plants representing a $56-million investment had annual sales of $17 million.[114] Also in the 1850s, the coal-oil industry thrived. Shale oil, which reached peak production of 30,000 gallons a day in 1860, joined manufactured gas to replace candles for many Americans.[115]

The fall of synthetic oil and gas was even more rapid than their rise. Oil from the Pennsylvania fields displaced coal oil in the early 1860s. When natural-gas wells were discovered near coal-gas markets, coal gasification was abandoned as uneconomical.

Predictions of oil shortages by the Interior Department and the Department of the Navy, which led to the establishment of the naval petroleum reserves between 1912 and 1923, led the U.S. Geological Survey to conduct field studies on shale oil beginning in 1917. Shale-oil production in England served as a model. Another Interior agency, the Bureau of Mines, proposed to investigate the commercial feasibility of oil-shale plants. Federal authorities, the *Oil & Gas Journal* reported, considered the synfuels issue an "important question of conservation" and hoped to create "an oil supply more valuable even than the crude petroleum."[116]

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[112] Thomas C. Taylor, "The Politicization of a Profession," p. 5.

[113] Harold Williamson and Arnold Daum, *The Age of Illumination*, p. 40.

[114] Harold Williamson and Arnold Daum, *The Age of Illumination*, p. 57.

[115] Harold Williamson and Arnold Daum, *The Age of Illumination*, p. 57.

[116] "To Erect Shale Retort Is Government Plan," *OGJ*, February 22, 1917, p. 30.

A second brush with synfuels occurred in the 1925–29 period when the Bureau of Mines resumed research on shale-oil extraction. The commercial stage was reached, and 3,600 barrels of oil were extracted from 6,000 tons of Colorado oil shale. With the rise of the Texas and Oklahoma oil fields in the late 1920s, interest in synfuels waned; funding was halted until the mid-1930s when small quantities of gasoline were extracted from lignite and bituminous coal.[117]

Second Period: 1944–55

Oil-supply problems due to price controls and other anti-production policies during World War II renewed federal enthusiasm for producing synthetic fuels. Congressional hearings began in the summer of 1942, and a year later a bill sponsored by coal-state congressmen to produce oil fuels and lubricants from coal, shale, and natural gas was debated.[118] Interior Secretary Harold Ickes pushed for similar legislation by arguing:

> The United States is losing ground as the outstanding producer of petroleum. Since 1938, the consumption of petroleum in the United States has exceeded the discovery of new reserves. I believe the time is at hand for more intensive research in the production of synthetic fuels, especially with regard to larger-scale demonstration plants, both for possible war use and in the postwar era.[119]

Another argument within the Interior Department was that technological advances in conversion were imminent, and if government, instead of a major company, uncovered the secrets, many small firms could carry on instead of one firm or several.[120]

Foremost in the minds of officials was Nazi Germany, which produced half of its gasoline synthetically.[121] Also encouraging was the domestic precedent of synthetic rubber production, which received a $750-million federal grant in 1941, administered by Jersey Standard. The prevailing opinion among officials was that the next war would find an even greater role for synfuels.[122]

Debate over the synfuel bill centered on the proposed $30-million allocation, which was well below amounts other countries were spending on similar commercialization. Secondary in the debate was the opportunity cost of federal-private development of synfuels, which was already under way. Stated A. W. Gauger, professor of mineral industry research at Pennsylvania State College:

> There has been a growing tendency to create new laboratories and agencies and to seek out men and men from other state or private organizations to man them. This process inhibits instead of accelerates progress and is at best a costly, wasteful procedure.[123]

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[117] "Government Seeking Data for Synthetic Oil Plant," *OGJ*, August 5, 1943, p. 19.

[118] Subcommittee of the House Committee on Mines and Mining, *Production of Gasoline, Rubber, and Other Materials from Coal and Other Products*, 77th Cong., 2d sess., June 17–18, 25, July 15, 1942 (Washington, D.C.: Government Printing Office, 1942).

[119] "Government Seeking Data for Synthetic Oil Plant," *OGJ*, August 5, 1943, p. 19.

[120] Craufurd Goodwin, "Truman Administration Policies toward Particular Energy Sources," in *Energy Policy in Perspective: Today's Problems, Yesterday's Solutions*, ed. Craufurd Goodwin (Washington, DC: Brookings Institution, 1981), p. 147.

[121] An overview of Germany's synfuel production is contained in J. Brian Eby, "Germany's Oil Fields and Synthetic Plants," *Oil Weekly*, February 4, 1946, International Supplement, pp. 13–18.

[122] Craufurd Goodwin, "Truman Administration Policies toward Particular Energy Sources," pp. 147–48.

[123] W. W. Weston, "Oil-from-Coal Facts Already Known, Say O'Mahoney Bill Critics," *NPN*, January 12, 1944, p. 5. University research, however, was primarily government financed.

On April 5, 1944, the Synthetic Liquid Fuels Act authorized $30 million for the Bureau of Mines for "construction and operation of demonstration plants to produce synthetic liquid fuels from coal, oil shales, agricultural and forestry products, and other substances, in order to aid the prosecution of the war, to conserve and increase the oil resources of the Nation, and for other purposes."[124] Within five years, one or more demonstration plants were to be built and maintained. Those plants were to be of a "minimum size which will allow the Government to furnish industry the necessary cost and engineering data," yet not be so large as to "constitute a commercially significant amount of the total national commercial sale and distribution of petroleum and petroleum products."[125] Any synfuels produced were to be sold at cost or below cost to the War Department or Navy Department on request. Remaining supply could fetch the going price on the private market.

The end of wartime did not diminish the zeal of the synthetic-fuels lobby. The coal industry faced unprecedented competition from natural gas, and problems with oil and gas supply during 1947 and 1948 reinforced the pessimistic view of government officials.[126] With expiration of the act set for mid-1949, Interior Secretary Julius Krug lobbied for a $9-billion commitment to synfuels with a five- to ten-year short-term production goal of 2 million barrels per day.[127] With current synfuel output at 50 barrels per day from a Rifle, Colorado, plant and 200 barrels per day from a Louisiana, Missouri, plant, and laboratories in Pennsylvania, West Virginia, and Wyoming without commercial capabilities, this goal was scarcely imaginable, even after surviving assets and technical information from Germany's synthetic-fuels industry were secured.

Amid optimistic pronouncements from the Interior Department that "the unknowns are falling away one by one" and that the United States would realize "oil independence at any time that our dwindling domestic natural petroleum reserves make it necessary to turn to synthetic sources of gasoline,"[128] President Truman extended the program three years and doubled spending authority to $60 million.[129] Opposing the bill were the Independent Petroleum Association of America and individual producers who feared increased competition if demonstration production was significantly increased or a technological breakthrough occurred.[130]

On September 22, 1950, a second (and final) extension and expansion of the program became law.[131] Three more years made the total duration of the program eleven years, and $27.6 million was added to bring the cumulative authorization to $87.6 million. Although no breakthroughs had occurred to achieve cost parity, and optimism was more guarded, the new emphasis was on *national security.* Secretary of Defense James Forrestal saw synfuels as a potential savior in "a major war effort" where demand "would exceed by at least 2 million [barrels per day] the now predictable production of the U.S."[132]

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[124] Pub. L. 78-290, 58 Stat. 190 (1944).

[125] Pub. L. 78-290, 58 Stat. 190 (1944).

[126] Postwar supply problems are described in chapter 24, pp. 1432–39.

[127] "Quick Start on Synthetics Program Urged by Interior Secretary Krug," *NPN*, January 28, 1948, p. 19. Krug argued: "The country, therefore, is squeezed between increasing demand and decreasing productive capacity. The effect already is reflected in local shortages." For a pro-con debate on subsidized synfuel development, see James Boyd "Yes" and A. L. Solliday "No," in "Should the Government Build a Synthetic-Oil Industry?" *Modern Industry*, July 15, 1948, pp. 100–102, 104, 106, 108.

[128] Quoted in Craufurd Goodwin, "Truman Administration Policies toward Particular Energy Sources," p. 149.

[129] Pub. L. 80-443, 62 Stat. 79 (1948). One million dollars was appropriated to conduct research on secondary recovery from stripper wells and refining processes.

[130] "IPAA Opposes Subsidization of Synthetic Fuel Industry, Raps Talk U.S. Is Running out of Oil," *NPN*, May 5, 1948, p. 16.

[131] Pub. L. 81-812, 64 Stat. 905 (1950).

[132] Herbert B. Yocom, "Industry Now Can Prove Fallacy of Truman Synthetics Program," *NPN*, March 2, 1949,

The coal industry remained adamantly in favor of synthetic production to replace demand lost to fuel oil and particularly natural gas. Another constituency was the administering agency, the Bureau of Mines, and alliances favored one of the four particular synfuel processes: coal hydrogenation, shale-oil recovery, gas synthesis, and gas conversion to liquid fuel.[133]

The Korean conflict offered proponents of synfuels another chance to take the offensive. Bureau of Mines director James Boyd lobbied Interior Secretary Oscar Chapman for two 15,000-barrel-per-day coal-hydrogenation facilities at a cost of $326 million as a step toward "ultimate self-sufficiency in liquid fuels."[134]

Secretary Chapman lobbied the Defense Production Administration for $455 million, primarily for private-development incentives. In the commercialization debate, the oil industry more than ever before scrutinized the claims and results of the Bureau of Mines to find that, indeed, little progress toward competitive parity had been made. A National Petroleum Council study released in October 1951 estimated the cost of gasoline from coal hydrogenation at $0.414 per gallon compared to the government estimate of $0.11 per gallon.[135] Robert Wilson, chairman of Indiana Standard, complained that the Bureau of Mines understated cost, overstated revenue, and failed to account for risk in its capital-cost estimates.[136]

Retrospective study of the debate confirmed oil-industry concern. "What is most disillusioning about the debate over synthetic fuels that raged within government during the Korean War," Craufurd Goodwin remarked, "is that more and more it was conducted by determined special interests making exaggerated claims on all sides."[137] Another factor that inhibited a major commitment to synfuels was scarce supplies of steel and other raw materials that would have to be withdrawn from other wartime uses on the gamble of a long-term payoff.

With the close of the Korean conflict, enlarged synfuel proposals were no longer seriously considered. In 1953, one of two major oil-shale demonstration plants was sold to private interests. In the same year, the head of the Bureau of Mines, W. C. Schroeder, resigned with the statement, "Now that the government is out of the synthetics development program, I am sure that private industry will go ahead with the Louisiana plant and the information they gain will eventually be passed along to the public in the form of patents."[138] In April 1955, the Synthetic Liquid Fuels Act expired, although over $4 million earmarked for synthetic-fuel research was included in Interior's 1955 budget.[139] In eleven years, $82 million had been spent out of an $85.2-million allocation. Along with other Interior appropriations, synfuel subsidies totaled over $106 million as shown in table 10.2.

The eleven-year, $107-million allocation did not result in any major breakthroughs to make synfuels economical. This result was predictable, given the caution of private industry

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p. 11.

133 Craufurd Goodwin, "Truman Administration Policies toward Particular Energy Sources," p. 155.

134 Craufurd Goodwin, "Truman Administration Policies toward Particular Energy Sources," p. 159. Boyd looked to the Defense Production Act of 1950 for funding authorization and predicted a profit within twelve years.

135 Craufurd Goodwin, "Truman Administration Policies toward Particular Energy Sources," p. 163. Other studies reduced the discrepancy but still found the government figures, which still were well below parity with conventional oil-lifting costs, understated.

136 Craufurd Goodwin, "Truman Administration Policies toward Particular Energy Sources," p. 163.

137 Craufurd Goodwin, "Truman Administration Policies toward Particular Energy Sources," p. 158.

138 Glenn M. Green Jr., "Resignation of Dr. Schroeder Puts Period to Synthetic Oil-or-Else Era," *NPN*, September 9, 1953, p. 13.

139 "Synthetic Fuels Program Outlined by Government," *NPN*, January 20, 1954, p. 19.

Table 10.2

ALLOCATIONS FOR SYNTHETIC FUELS (thousands of dollars)

	Coal		Oil Shale			
Date	Research & Development	Demonstration	Research & Development	Demonstration	Construction	Total
1945	2,750	340	585	915	2,403	6,993
1946	2,598	2,739	225	1,439	3,937	10,938
1947	1,371	2,120	429	1,330	2,124	7,374
1948	1,775	3,500	375	1,350	2,379	9,379
1949	2,771	8,379	500	2,100	7,680	21,430
1950	2,528	4,625	598	1,998	1,671	11,420
1951	2,335	3,754	510	1,800	718	9,117
1952	2,213	3,326	480	1,615	718	8,352
1953	4,886	3,193	482	1,475	2,850	12,886
1954	2,359	297	482	1,541	200	4,879
1955	2,305	–	477	1,257	–	4,039
Total	27,891	32,273	5,143	16,820	24,680	106,807

about major investments in the area. Cost parity between derived oil and gas and crude oil and natural gas remained elusive. Like other government energy programs before and after, the synfuels effort became more politicized and less focused over time. Pork-barrel influences transcended the scientific despite the limited scope of the effort.[140] If, indeed, a greater private role was economical, relaxation of antitrust law was called for to allow cooperative research and development through trade groups such as the American Petroleum Institute or a specially formed corporation. Instead, the majors were concentrating on developing foreign fields, which resulted in a level of imports in the 1950s that not only drowned the most optimistic hopes for synfuel commercialization but led to import quotas to protect domestic crude production.[141]

SOURCE: U.S. Department of the Interior, Bureau of Mines, *Synthetic Liquid Fuels Program, 1944–55* (Washington, D.C.: Government Printing Office, 1959), p. 4.

[140] The debate over an expanded program during the Korean conflict led Craufurd Goodwin to state: "The prospect of substantial funds becoming available at last for synthetic fuel production drew the attention of those influential members of Congress who hoped for facilities to be constructed in their districts. It also brought one of the few direct interventions from [Truman] into the synthetics program in behalf of 'my good friend Harley O. Staggers' and the experimental station in Morgantown, West Virginia." Craufurd Goodwin, "Truman Administration Policies toward Particular Energy Sources," p. 160.

[141] See chapter 13, pp. 726–35.

Third Period: 1971–84

The problems of the post-World War II synfuel effort were forgotten during the energy crises of the 1970s. New alarms were sounded, and "quick-fix" solutions were sought in research and development and in the commercialization of synthetic fuels.

Research and Development. Newfound activism in energy policy began with a June 4, 1971, message to Congress by President Nixon, in which he announced "a broad range of actions to ensure an adequate supply of clean energy for the years ahead." Nixon would later identify this as "the first message on energy policies ever submitted by an American President."[142] Oil supply was growing tighter, and natural gas was experiencing shortages in interstate markets. With abundant coal reserves and shale reserves, Nixon's 1971 message envisioned a greater future role for synfuels. He also announced that "in addition to its coal gasification work, the Department of the Interior has under way a major pilot plant program directed toward converting coal into cleaner liquid fuels," and proposed an "expanded program" to liquefy coal and "the orderly formulation" of shale-oil leasing on federal lands.[143]

Nixon's infatuation with new energy sources led to budget increases for synfuel-related Interior Department programs. The 1974 budget of $120 million for coal research and development was 300 percent above 1970 amounts. A roadblock to coal and shale conversion, however, was strip-mining reserves and coal emissions, which cooled Congress toward Nixon's request for a $10-billion, five-year crash program of energy research and development. Another unsuccessful Nixon initiative in troubled 1973 was a windfall profits tax to underwrite an energy development trust fund to undertake "a wide range of energy development and conservation projects which might not otherwise be feasible."[144]

President Ford continued Nixon's interest in alternative fuel development with a major emphasis on synthetic fossil fuels. On October 11, 1974, Ford established the Energy Research and Development Administration, with a $2.2-billion budget and a 7,000-person staff taken largely from the abolished Atomic Energy Commission.[145] Synfuel programs within the Interior Department were transferred to the new agency, but the bulk of activity was in the nuclear and environmental areas. On January 19, 1975, the Energy Research and Development Administration (ERDA) was activated by executive order to "bear the responsibility for leading the National effort to develop the needed technology to assure that the United States will have ample and secure supplies of energy at reasonable prices."[146]

The Federal Non-Nuclear Energy Research and Development Act, passed several months later, declared that a $20-billion, ten-year research effort in nonnuclear areas was necessary

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[142] Richard M. Nixon, "Special Message to the Congress on Energy Resources," June 4, 1971, in U.S. Senate, Committee on Energy and Natural Resources, *Executive Energy Documents* (Washington, DC: Government Printing Office, 1978), p. 1; Richard M. Nixon, "Special Message to the Congress on Energy Policy," April 18, 1973, in U.S. Senate, Committee on Energy and Natural Resources, *Executive Energy Documents* (Washington, DC: Government Printing Office, 1978), p.14.

[143] Richard M. Nixon, "Special Message to the Congress on Energy Resources," June 4, 1971, in U.S. Senate, Committee on Energy and Natural Resources, *Executive Energy Documents*, pp. 1, 5, 7.

[144] Richard M. Nixon, "Statement Proposing Enactment of an Emergency Windfall Profits Tax," December 19, 1973, in U.S. Senate, Committee on Energy and Natural Resources, *Executive Energy Documents*, p. 114.

[145] Pub. L. 93-438, 88 Stat. 1233 (1974). Other alternative-fuel legislation in the solar and geothermal areas is surveyed in chapter 27, p. 1679. An overview of these research areas is contained in Richard S. Greeley, "Advanced Energy Technology," in *Free Market Energy: The Way to Benefit Consumers*, ed. S. Fred Singer (New York: Universe Books, 1984), pp. 308–42.

[146] Gerald R. Ford, "Statement Announcing Activation of the Energy Research and Development Administration and the Nuclear Regulatory Commission," January 15, 1975, in U.S. Senate, Committee on Energy and Natural Resources, *Executive Energy Documents*, p. 249.

and directed the ERDA administrator to present a comprehensive plan to Congress the next year.[147] Federal assistance to private-sector projects, such as price guarantees and loans, was authorized, although congressional approval was required for amounts over $50 million.

In his 1975 State of the Union address, President Ford set a goal of 1 million barrels per day of synfuels by 1985. After a request for $6 billion for loan guarantees and an oil-shale demonstration plant was rejected by the House after Senate approval, Ford unveiled a $100-billion plan, spearheaded by Vice President Nelson Rockefeller, to subsidize a variety of energy projects, prominently including synfuels, through the commercialization phase. Originally called the Energy Resources Finance Corporation and later changed to the Energy Independence Authority, the ten-year program with $25 billion in equity and $75 billion in government-backed borrowing authority was soundly rejected by fiscal conservatives and suspicious Democrats.[148]

President Carter shared the optimism of the previous two presidents about alternative energy sources and synthetic oil and gas production in particular. On November 27, 1979, Carter established the Energy Security Reserve within the Treasury Department with a $19-billion appropriation.[149] Of this amount, $1.5 billion was made available to the Department of Energy (DOE), formed on October 1, 1977, to consolidate the ERDA and many other energy-related agencies, "for purchases or production by way of purchase commitments or price guarantees of alternative fuels." Another $708 million was made available for immediate DOE use "to support preliminary alternative fuels commercialization activities": $100 million for project feasibility, $100 million for cooperative agreements, $8 million for administration, and $500 million to cover defaults of guaranteed indebtedness not to exceed $1.5 billion.

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As of 1984, an estimated 2,000 contracts, amounting to over $2 billion, had been awarded by the DOE for research on and development of synthetic fuels. Grants ranged from underwriting laboratory chemists to funding major field projects. Twenty pilot plants in various synfuel areas were completed, and actual production came on stream at sites in California, North Dakota, Tennessee, and Illinois.[150]

The Department of Energy Act of 1978 authorized loan guarantees for alternative-fuel demonstration projects.[151] In July 1980, President Carter approved in principle a $1.5-billion loan guarantee to the Great Plains Coal Gasification Project, which had earlier failed to attract the interest of private investors. The tentative agreement expired, and in August 1981, Reagan approved a new proposal that was finalized in January 1982.[152]

The $2.02-billion nonrecourse loan, equivalent to 75 percent of the anticipated total cost of the project, was funded by the Treasury Department's Federal Financing Bank at 0.75 percent over that bank's variable rate. Repayment was to be within 20 years or within 90 percent of the expected useful life of the project assets. As a nonrecourse loan, default leaves the DOE with the assets of the project and no claim on project sponsors Tenneco (30

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147 Pub. L. 93-577, 88 Stat. 1878 (1974).

148 Neil de Marchi, "The Ford Administration: Energy as a Political Good," in *Energy Policy in Perspective*, ed. Craufurd Goodwin, pp. 518–20.

149 Pub. L. 96-126, 93 Stat. 954, 970 (1979), pursuant to the Non-Nuclear Energy Research and Development Act, Pub. L. 93-577, 88 Stat. 1878 (1974).

150 Conversation with Bob Porter, information officer, Fossil Energy Program, Department of Energy, November 6, 1984.

151 Pub. L. 95-238, 92 Stat. 47 (1978).

152 "U.S. Synfuels Projects Given Loan Guarantees," *OGJ*, August 10, 1981, p. 59, and "Great Plains Loan Guarantee Pact Signed," February 8, 1982, p. 67.

percent), American Natural Resources Company (25 percent), Transco (20 percent), MidCon Corporation (15 percent), and Pacific Lighting (10 percent).

Production began in November 1984 at 50 percent of the plant's 137 million cubic feet per day capacity with the help of a guaranteed price contract. The project was finished at year-end at budgeted cost. Declining natural gas prices beginning in 1983, however, ruined the economics of the project, leading to attempted renegotiation. The parties defaulted on their $1.54 billion loan in August 1985, erasing $537 million in owner equity. The DOE took over the plant, eventually selling it to a private party in 1988.

Other major synfuel projects requested financial assistance under DOE authority but would wait until the synfuel program expanded in 1980.

Commercialization: The Synthetic Fuels Corporation. In April 1979, Carter proposed an energy security fund financed by a windfall profits tax, with 76 percent of its funding dedicated to alternative-fuel development. After five years of improved oil supplies, Congress was not motivated to underwrite a major program. It would take the summer gasoline lines in 1979 to set the sails of a new synfuel commitment. During the second half of 1979, Congress rallied behind the White House for federally subsidized synfuel commercialization despite opposition from environmental and business groups. Opposition was also heard from quarters of the oil industry.

On June 30, 1980, the Energy Security Act became law.[153] To Carter, it was "the cornerstone of U.S. energy policy"; to critics, it was a "cookie-jar bill," prone to politics and misdirection of resources. With synfuel production targets of 500,000 barrels per day by 1987 and 2 million barrels per day by 1992, $88 billion was authorized for an Energy Security Reserve. Of this amount, $20 billion was available immediately to underwrite contracts, loan guarantees, and direct loans to private projects. Only as a last resort was public money to be used for federal projects. After accounting for previous funding by the DOE, $17.522 billion was earmarked for Title I with $12.212 billion for the corporation—$6 billion available on July 8, 1980, and $6.212 billion available on June 30, 1982.[154]

The commercialization program was to be administered by the United States Synthetic Fuels Corporation (SFC), which Congress modeled after a private corporate entity. The agency was to have a chairman, a board of directors, and regular financial audits. Strict congressional oversight was to prevent autonomous behavior and give Congress the high ground.

A companion bill to place up to seventy-five "critical" energy projects on a fast track by waiving environmental requirements failed. With coal and shale at the heart of the synfuel program, environmental exemptions by an energy mobilization board would have cut preparation cost and reduced delay to complement the Energy Security Act. Environmental interests were too strong for pro-Carter forces, and the House rejected the measure on June 27, 1980.

The unprecedented commitment to synfuels was a second chance for major projects that were stalled under the DOE's more limited authorization. It was also an invitation for new firms to enter the area. The National Council on Synthetic Fuels Production, headed by a former draftsman of synfuel legislation, was opened in Washington, D.C., to represent businesses in pursuit of subsidies. The level of interest was indicated by 951 applications received in June 1980 by the DOE for $200 million for synfuel feasibility studies. With oil

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[153] Pub. L. 96-294, 94 Stat. 611 (1980). Title I, Synthetic Fuels, was joined by other sections covering the alternative-fuel waterfront: Title II, Biomass Energy and Alcohol Fuels; Title V, Solar Energy and Energy Conservation; and Title VI, Geothermal Energy.

[154] Dana Contratto, "A Billion Here, a Billion There—A Review and Analysis of Synthetic Fuels Development Under Title I of the Energy Security Act," *Energy Law Journal* 1, no. 2 (1980): 257–58. Further allocations required congressional approval.

prices continuing to rise, a new industry seemed destined to develop.

Carter quickly staffed the SFC, and on November 21, 1980, the first solicitation for private-project aid was made. Despite the quick start, Carter's reelection defeat and a new budget-conscious administration raised uncertainty about the federal commitment. Despite advice from his transition team to abolish the program, Reagan filled open positions in the SFC and increased the sponsor-equity requirement of subsidized projects to 40 percent from 25 percent. As stated in the third *National Energy Policy Plan* released in July 1981:

> The Administration has restructured the National Synthetic Fuels Program to rely more heavily on private investment initiatives and less on the general taxpayer. Responsibility for commercializing the technologies of alternative fuels is shifting to the private sector, with potential support from the Synthetic Fuels Corporation.[155]

New life was pumped into synfuel subsidization in the summer of 1981 when Reagan broke a deadlock between White House aides and approved major DOE subsidies for three projects. On July 29, a $2-billion project of Union Oil to produce 50,000 barrels per day of crude oil from Colorado shale received $400 million in price guarantees and purchase commitments.[156] On August 5, a $2-billion loan guarantee was awarded to the Great Plains Coal Gasification Project, and a $1.1-billion loan guarantee was given to Tosco's portion of the Colony Oil Shale Project, jointly owned with Exxon. With these commitments, and previous subsidies to Ashland ($215 million for coal oil), Gulf ($90 million for coal oil), Northern Illinois ($50 million for coal gasification), Conoco ($38 million for coal gasification), and Memphis Light, Gas, and Water ($26 million for coal gasification), the DOE synthetic-fuel program was terminated and transferred to the SFC, which was officially declared operational—ready to grant direct and indirect subsidies—on February 9, 1982.[157]

In the first solicitation period ending March 31, 1981, sixty-three proposals were submitted. Requests for supplemental information by January 4, 1982, narrowed the number to twenty-seven, which government screening reduced to eleven and then five. By mid-1982, only two coal projects remained under consideration, with many other proposals, some recycled, in the early stages of a second solicitation held from December 11, 1981, to May 31, 1982.[158]

Meanwhile, the bottom fell out of the synfuel market. With falling energy prices shattering optimistic projections of steadily rising prices to allow break-even points and profitability for synfuels in future decades, major projects were terminated. In March 1982, Panhandle Eastern suspended indefinitely a coal-gasification project in Wyoming. Two months later, Exxon abandoned the Colony Oil Shale Project and bought out Tosco pursuant to their agreement. Thanks to Exxon's prudence in not seeking guarantees—indeed, it was a critic of government largess in the area—no taxpayer loss resulted. Also in May, Ashland dropped plans for a $13-billion tar-sands project.[159] Other projects continued but only

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[155] U.S. Department of Energy, *National Energy Policy Plan* (Washington, DC: National Technical Information Service, 1981), Third Plan, p. 11.

[156] Union Oil of California was a veteran of synfuel proposals to government. In 1953, a 10,000 barrel per day shale-oil proposal for the same geographical area unsuccessfully sought federal assistance. "Full-Scale Shale Oil Plant Proposed," *NPN*, October 28, 1953, p. 16.

[157] *Forbes*, March 30, 1981, p. 36; and *Wall Street Journal*, July 30, 1981, p. 8, and August 6, 1981, p. 6.

[158] "SFC Roster of Synfuels Aid Requests Down to 27," *OGJ*, January 11, 1982, p. 40; "SFC Cuts Projects Seeking Financial Aid to 11," January 25, 1982, p. 94, and "SFC Solicitation Draws 37 Proposals," June 14, 1982, p. 40.

[159] "Wyoming Gasification Project Suspended," *OGJ*, March 29, 1982, p. 53; "Exxon Halts Colony Oil Shale Project," May 10, 1982, p. 86; and "Alsands Tar Sands Project Terminated," p. 94.

because of the lure of SFC bailouts. Union and Great Plains approached authorities for price supports to cut losses once production came on stream, sweetening earlier loan subsidies.

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The new price reality, excess supply of conventional energy sources, and the slow pace of commitments brought heated criticism from Congress. Bills were introduced to abolish or scale down the program. Still, industry interest remained. As 1982 drew to a close, forty-six proposals were received in a third SFC solicitation.

In April 1983, the SFC made its first grant. The $820,750 subsidy, for design work on a project to convert carbonized vegetable tissue to methanol, was an ironic beginning to the Carter legacy. Not only was the project esoteric and puny, given several years of SFC solicitation and evaluation of more than a hundred proposals, its financial backers included many well-known Republican figures—former Federal Energy Administration head Frank Zarb, former ERDA head Robert Fri, Central Intelligence Agency director William Casey, and former deputy secretary of state Charles Robinson.[160] The same year, a $46.5-million loan guarantee was made to a California tar-sands project sponsored by Tenneco and four others, as was a $120-million price support award to the Cool Water Coal Gasification Project of Texaco and Southern California Edison. Another Tenneco project, co-owned with Occidental Petroleum, the Cathedral Bluffs Shale Oil Company, received a nonbinding commitment of $2.2 billion in loan guarantees and price guarantees equivalent to $60 per barrel.

SFC administration engendered controversy. In August 1983, SFC president John Schroeder resigned after it was discovered that he had awarded consulting contracts to former business associates. His replacement, Victor Thompson, was forced to step down in May 1984 when it was revealed that, as a director of the SFC, he had attempted to sell stock in his ailing bank to sponsors of a pending synfuel request. With Thompson's resignation, the agency did not have a quorum, and the need for new appointments to reactivate the SFC put the ball in Reagan's court. Reagan used that leverage later in 1984 to cut $5.4 billion from its authorization in return for a promise to congressional synfuel proponents to fill the vacant posts and leave the remaining $8 billion authorization alone. Irregularities in the information in another project application added controversy to a troubled period.

Criticism also came from doctrinaire congressional synfuel advocates, not coincidentally representing coal and shale states, who faulted the SFC for not making commitments equal to budgeted authority, which left synfuel production far below targets set in the Energy Security Act of 1980. In an effort to achieve active status, commitments of $4.4 billion were granted to six projects in April 1984.[161] This increased opposition from the other side, the anti-synfuel legislators, who complained of corporate welfare and doubling a bad proposition.

Union Oil received $2.7 billion in $60 per barrel price guarantees for a second-phase expansion, while its first phase was behind schedule. Dow Chemical received price guarantees of $620 million for a coal-oil plant in Louisiana that equated to between $11.00 and $12.50 per million British thermal units. A Texas heavy-oil project received $60 million and a California heavy-oil project received $100 million in price and loan guarantees. A Kentucky tar-sands project received $543 million in price supports as high as $55 per barrel, and a Maine carbonization project received $365 million in price and loan guarantees. All of these projects had more in common than qualification as synfuels. They were uneconomic

[160] *Houston Post*, April 14, 1983, p. A-24.

[161] "SFC to Assist Six U.S. Synthetic Fuels Projects," *OGJ*, April 16, 1984, pp. 36–37. While new commitments were announced, a fourth solicitation was under way.

risks under market conditions made economic by potential calls on tax dollars.

In August 1984, the troubled Great Plains Coal Gasification Project received a letter of intent from the SFC for $709 million in price supports after threatening to walk away from the project, leaving a $2-billion loan guarantee for authorities to retire. In October of the previous year, the price-support request had been denied, but upon reconsideration, 65 percent of the $2-billion request was tentatively awarded. Great Plains continued to face financial uncertainties, emblematic of the entire synfuel program in the face of continuing declines in energy prices through 1984.

Evaluation. A critical review of the history of synthetic-fuel development in the United States does not rest on crystal-ball assumptions of future supply and demand and thus the price of conventional oil and gas. While known reserves of synthetic-fuel feedstocks may outdistance proven and estimated reserves of crude oil and natural gas, and while synfuel commercialization is technologically feasible (and has been since at least World War II), forward-looking entrepreneurs dealing with relative prices (relative scarcities) have concluded again and again since the Pennsylvania oil strikes of the 1860s that oil and gas synthetics are uneconomic. While in the business world this means unprofitable, for society it means that resources capable of satisfying higher wants are expended on lesser wants.

Despite the market verdict, unfounded pessimism about future reserves of conventional fuels and unfounded optimism about imminent technological breakthroughs to achieve competitive parity have led to taxpayer subsidies and moral suasion by government to develop synthetic fuels. The experiences of 1944–55 and 1971–84 speak for themselves. Breakthroughs were not achieved, and in fact, conventional fuels increased their competitive advantage during both periods. In retrospect, shortcuts to energy prosperity were naive illusions.

The error of government synfuel subsidization can be fully appreciated in historical context. During World War II, wellhead regulation reduced incentives to produce and locate new reserves, which was worsened by downstream regulation to the point of physical shortages.[162] The wrong conclusion was drawn from a politically created predicament: supply was fixed and running out, and synthetic fuel research and development were necessary for a new energy era.

In the 1970s, the same mistake was repeated in magnified form. Price and allocation controls dulled incentives for domestic exploration and production, drove up world energy prices, and created physical shortages.[163] The guilty regulations were necessary in their own right to prevent inflation and to equitably distribute supply, the Carter Administration posited. This left the problem of supply, which he attributed to the niggardliness of nature that synfuels in part could conquer. Without consequential government intervention in World War II and the 1970s, the supply problem would not have existed for a government "solution."

Much intellectual error in the synthetic-fuels debate could have been avoided if it had been realized that mineral resources can—and have—become less scarce over time. Even so-called depletable resources are economically open-ended because changing technology and prices change recoverable supply. In fact, improving technology can increase supply faster than it is consumed. Julian Simon has documented that a number of mineral resources, including oil, have experienced flat or declining prices adjusted for inflation. While short-run dislocations such as "weather, war, politics, and population movements" may cause supply crises and higher prices, "human resourcefulness and enterprise ... leave us better off than before the problem arose."[164] The behavior of oil and gas in the regulated 1970s—compared

[162] See chapter 5, pp. 243–48, and chapter 24, pp. 1409–26.

[163] See chapter 9 and chapter 27 generally.

[164] Julian L. Simon, *The Ultimate Resource* (Princeton, NJ: Princeton University Press, 1981), p. 345.

with the less regulated 1980s—is a case in point.

The more recent government-funded synfuel experience (still going on in 1984) is an example of inflexibility in the face of change. Despite every indication of failure, the program continued, albeit in reduced form, with new commitments and more solicitations. Past commitments had created demand for renegotiated commitments as falling energy prices caused project economics to deteriorate. In a game of taxpayer blackmail, firms have threatened to walk away from projects, leaving loan guarantees for the SFC to liquidate. (Faced with a $2-billion tab on one project, the government consented to new price supports.) With under $1 billion expended and nearly $7 billion on the line, the worst was yet to come for taxpayers. The same was true for shareholders of involved companies whose decision to take the government bait and take equity positions was increasingly being revealed as entrepreneurial error.

Miscellaneous

Oil-Well Torpedo Monopoly: 1866–79

In the first years of oil production, flowing wells were sometimes hindered by a waxy substance, paraffin, that crude oil left in the well tubing and well bottom.[165] Early efforts to remove residue involved injecting steam, boiling liquids, and air into a well's tubing. These mildly successful techniques were then replaced by a far superior alternative—oil-well torpedoing. Gunpowder explosions in water wells had been documented as early as 1808, and between 1860 and 1864, the technique was in use with oil wells as well.

Despite its early use, Civil War Colonel E. A. L. Roberts claimed to have discovered the idea in 1862 at the Battle of Fredericksburg after witnessing the results of cannon fire into a water canal. On November 18, 1864, he applied to the U.S. Patent Office for "a process of increasing the productiveness of oil-wells by causing an explosion of gunpowder or its equivalent at or near the oil-bearing point, in connection with superincumbent fluid-tamping."[166] Despite similar patent applications from several well-shooting practitioners, Roberts two years later received "the patent that was to become a grievous monopoly."[167]

In the same year his legal monopoly was issued, Roberts opened the Roberts Petroleum Torpedo Company in New York to manufacture bombs for use in the Pennsylvania oil region. He charged monopoly prices for his services. With production costs of between $15 and $20 per torpedo, he charged from $100 to $200 and a one-fifteenth royalty on increased output after the explosion. Would-be competitors and disgruntled oil operators formed the Producers Union Association, raised $50,000 for legal expenses, and challenged the patent in U.S. district court. The challenge was denied in 1871. Nevertheless, competition arose as Roberts's exorbitant prices attracted a black market of moonlighters who risked their lives by strapping explosives to their backs to then lower into wells for discharge under the cover of darkness. Not only was this done more cheaply, which forced Roberts to reduce his prices, new innovative techniques were introduced by the nocturnal monopoly breakers.

In response, Roberts hired a network of informants, which resulted in nearly 2,000 arrests. Many were jailed, and settlements added to Roberts's company coffers. With his patent reissued in 1873 and again upheld in court despite a strong case documenting well shootings prior to 1864, the scope of the government grant was narrowed and legal

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[165] This discussion comes from John McLaurin, *Sketches in Crude Oil* (Harrisburg, PA: John McLaurin, 1896), pp. 383–87; and Harold Williamson and Arnold Daum, *The Age of Illumination*, pp. 149–56.

[166] John McLaurin, *Sketches in Crude Oil*, p. 385.

[167] John McLaurin, *Sketches in Crude Oil*, p. 386.

competition began to emerge by 1880. A year later, E. A. L. Roberts—the man responsible for more litigation than any other person in U.S. history up until his time—died, leaving behind a great fortune memorialized by a torpedo-shaped tombstone above his grave.

The torpedo innovation represented a boon for oil production. Recognized in 1866 by the editor of *Scientific American* as the most beneficial technique known to enhance recovery, it not only rejuvenated pumping wells but turned near-miss dry holes into producing properties.[168] Nonetheless, the Roberts patent was a government intervention in the petroleum market. Going beyond the legitimate bounds of common-law copyright protection, it ignored independent discovery and prior use. Moreover, the patent was given for a general idea rather than a specific technological innovation. Thus, when nitroglycerin replaced gunpowder and new drop methods were adopted, some of which originated with the moonlighters, Roberts was protected by the original wording of his patent.

The consequences of the torpedo monopoly were both subtle and pronounced. By unnecessarily increasing costs of oil production, the monopoly meant lower supply and higher prices for consumers of petroleum products and lower economic rents for royalty owners and well operators. Those effects were subtle compared with the other consequence—clandestine operations leading to deaths and injuries. The precise number of fatalities among Roberts's daytime operators and the nighttime black marketeers is not well documented, but available evidence suggests a greater incidence of mishap for the latter group than for the former.[169] If that is so, this intervention ranks among the more consequential of the nineteenth century.

Government Drilling

State governments have occasionally authorized publicly financed petroleum exploration and production. In 1889, the Kansas legislature permitted the city of Paola to drill wells and produce natural gas for its residents and municipal use.[170] In 1984, the Texas land commissioner successfully drilled several wells on state land when attempts to lease the land to a private party to fulfill a lawsuit settlement failed.[171]

In its lone attempt, the federal government has had much less drilling success. From 1974 through 1980, twenty-two dry holes were drilled in the Alaskan Naval Reserve, the first seven by the Navy and the next fifteen by the Interior Department. The $700-million expenditure was 20 percent more expensive than normal because multiyear contracts with subcontractors were not allowed. Another problem was that the drilling locations were concentrated on one-eighth of the reserve for environmental reasons. If privately done, fewer wells would have been drilled at less cost on more dispersed sites to better evaluate the prospect. This failure was recognized by Congress, and bills were introduced to lease acreage to private companies for future exploratory work.[172]

State and Local Discovery Rewards

State and local governments have offered rewards for oil and gas first discovered in their jurisdiction. In 1903, Nebraska amended an 1875 mineral-development law to offer $15,000 for a qualifying new oil discovery producing at least 50 barrels per day for sixty consecutive days, as well as $15,000 for a qualifying new natural-gas discovery producing at least 500

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[168] Harold Williamson and Arnold Daum, *The Age of Illumination*, p. 154.

[169] See John McLaurin, *Sketches in Crude Oil*, pp. 390–98.

[170] Innis D. Harris, "Legal History of Conservation of Oil and Gas in Kansas," in American Bar Association, *Legal History of Conservation in Oil and Gas* (Baltimore, MD: Lord Baltimore Press, 1939), p. 39.

[171] *Houston Chronicle*, May 21, 1984, pp. 1–7.

[172] *Fortune*, November 3, 1980, p. 92.

Mcf per day for thirty consecutive days.[173]

In 1901, Nevada offered a $1,000 "bounty" to the first producer of five barrels of crude oil or the discoverer of one thousand cubic feet of natural gas.[174] Undoubtedly, these state legislatures reasoned that oil and gas were indiscriminately located and simply needed to be found in their areas as they had been elsewhere to provide local industry and tax revenue for the state.

In the 1950s, a second wave of discovery rewards began when Georgia offered $100,000 to the first oil well that produced 250 barrels per day. Several years later, the reward was increased to $250,000, and the quantity dropped to 100 barrels per day, with the prize divided among the royalty owner, the contractor, the operator, and the workers.[175] In 1953, Tennessee offered $50,000 for a well delivering 50 barrels per day of crude oil or 24 Mcf per day of natural gas for six straight months.[176] Oil and gas had been intermittently produced in small quantities in Tennessee since 1860, but large reservoirs had not been discovered. The offer expired without a claimant. The Oregon legislature considered a $150,000 reward for the state's first petroleum discovery in 1957 but did not act on the idea.

Statutory remuneration for oil and gas finds has not been confined to the state level. Soon after the discovery of the East Texas field in late 1930, Longview, Texas, proffered $10,000 for the first find within its trading district. Within a month, an extension of the East Texas field was struck, and the reward was dispensed.[177]

Discovery rewards, amounting to contingent government subsidies, have a wasteful side to their endearing character. In the event that the lure results in drilling activity and nondiscovery, resources literally have been gambled away as a consequence of government intervention. This occurred in Georgia where "a flurry of exploratory activity" followed the reward law with disappointing results.[178] With a qualifying discovery, a redistribution of wealth occurs from taxpayers to drilling interests. It is true that subsequent production-related taxation could reduce, nullify, or exceed the initial treasury payment, but this must be balanced with the risk that the reward will produce dry holes, as historically has been the case, and the probability that the uncovered reservoir eventually would have been found without taxpayer subsidy if economic. Further, in the event of a discovery, an economic distortion could occur if operators adjusted flow rates away from normal present-versus-future profit calculations to meet the reward's conditions. Consumer preferences could be violated if production were reduced to a minimum to meet the longevity requirement or the reservoir were damaged by above-optimum withdrawal rates to meet the flow minimum. These potential problems have not occurred because discoveries of this kind have not been made under a reward situation.[179]

Affirmative Action

One intervention has concerned the offshore drilling industry exclusively. In 1978

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[173] W. W. Thornton, *The Law Relating to Oil and Gas*, 4th ed., 2 vols. (Cincinnati, OH: W. H. Anderson, 1925), vol. 2, p. 2017.

[174] W. W. Thornton, *The Law Relating to Oil and Gas*, vol. 2, p. 2029.

[175] Robert Sullivan, "Georgia," in *Conservation of Oil and Gas, a Legal History, 1958,* ed. Robert Sullivan (Chicago, IL: American Bar Association, 1960), p. 66.

[176] Robert Sullivan, "Tennessee," in *Conservation of Oil and Gas, a Legal History, 1958,* ed. Robert Sullivan, p. 217.

[177] Ruth Sheldon Knowles, *The Greatest Gamblers: The Epic of American Oil Exploration*, 2nd ed. (New York: McGraw-Hill, 1959), p. 262.

[178] Robert Sullivan, "Georgia," in *Conservation of Oil and Gas, a Legal History, 1958,* p. 66.

[179] Other potential problems would be marginal finds produced only to receive the award, dishonesty, or legislative relief lowering qualification requirements.

amendments to the Outer Continental Shelf Lands Act, Congress directed the Interior Department to "take such affirmative action as deemed necessary to prohibit all unlawful employment practices and to assure that no person shall, on the grounds of race, creed, color, national origin, or sex be excluded from receiving or participating in any activity, sale, or employment conducted pursuant to the provisions of this act."[180] The rationale and intent of Congress were echoed three years later by Interior Secretary James Watt: "Since the oil and gas resources of the OCS belong to all Americans ... all Americans should have a fair shot at contributing to the development of these resources."[181]

On December 3, 1980, the Interior Department under Secretary Cecil Andrus issued a final rule setting forth a program designed to force offshore companies to purchase equipment from women-owned business enterprises and minority-owned firms.[182] By January 2, 1981, the effective date of the regulation, five women-owned businesses were positioned to benefit from the regulation. Tubular drill pipe, however, the most salable piece of offshore equipment, was in short supply as a legacy of price controls, and obtaining a distributorship was next to impossible for these opportunistic firms.[183] This problem, and general industry disfavor, led to repeal on October 16, 1981, on grounds that "the requirements of the regulations were burdensome, unnecessary, and counterproductive."[184]

The free market penalizes true discrimination (i.e., the refusal to buy a product of better quality or at a better price or to sell a product at a higher price because of race, sex, or any other arbitrary criterion) by penalizing profits. The discriminator must literally pay for his choice because of the higher cost or lower revenue implications of his actions.[185] George Smith, founder and president of Smith Pipe and Supply, Inc., the nation's seventh largest black-owned company in 1981, attested to this when he opined in response to the Interior Department rule:

> I've tried not to build my business and hopes on laws that were passed. I've tried to build on the free enterprise system.... Most of my customers do business with me because I give good service. They will continue to do business with me as long as I give them service and a good product at a good price.[186]

Government-mandated business, on the other hand, penalizes the buying company, consumers of final products, and more competitive firms. Contrary to the law's intent, such edicts create ill will toward privileged firms and their principals.

Bankruptcy

Another intervention applies to business enterprise in general—bankruptcy law. Following three earlier short-lived federal bankruptcy statutes, the Bankruptcy Act of 1898 established the first enduring federal bankruptcy system, including extracontractual

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[180] Pub. L. 95-372, 92 Stat. 629 (1978). The law also stated, "Any rules promulgated under this section ... shall be similar to those established and in effect under Title VI and Title VII of the Civil Rights Act of 1964."

[181] U.S. Department of the Interior, News release, November 10, 1981.

[182] 45 *Fed. Reg.* 80258 (December 3, 1980).

[183] *Houston Post,* January 11, 1981, p. C-22.

[184] 46 *Fed. Reg.* 45951 (September 16, 1981).

[185] Adds Thomas Sowell, "Translating subjective prejudice into overt economic discrimination is costly for profit-seeking competitive firms, although less so for government, public utilities, regulated industries like banking or non-profit organizations such as universities or hospitals." Sowell, *Ethnic America* (New York: Basic Books, 1981), p. 292. For a general critique of government intervention to prevent discrimination, see Sowell, *Markets and Minorities* (New York: Basic Books, 1981).

[186] *Houston Post,* January 11, 1981, p. C-22.

dissolution of obligations.[187] Amended by numerous laws, the most important of which were the Chandler Act of 1938 and the Bankruptcy Act of 1978, U.S. bankruptcy law has encouraged dishonesty and irresponsible financial behavior through legal forgiveness and penalized more worthy debtors by increasing the risk component of interest rates.[188]

Studies are unavailable on the degree to which production-related firms have benefited from or been hurt by bankruptcy law. Had the market run its course in the early 1930s in the Texas and Oklahoma oil fields, bankruptcy law might have hindered timely consolidation, but state conservation law intervened to protect marginal firms.

[187] Act of July 1, 1898, 30 Stat. 544.

[188] Pub. L. 75-696, 52 Stat. 840 (1938); and Pub. L. 95-598, 92 Stat. 2549 (1978). See Lawrence White, "Bankruptcy as an Economic Intervention," *Journal of Libertarian Studies* (Winter 1977): 281–88.