

CHAPTER 1

Introduction and Findings



Introduction and Findings

This technical memorandum is part of the Office of Technology Assessment's congressionally mandated study of outstanding Federal coal leases. This report traces the history of the 538 Federal coal leases in effect at the end of 1979.¹ It focuses on the coal lessees themselves: who they are, what they do, how and when they acquired Federal coal leases, and what they have done with these leases. More specifically, it identifies the participants in the Federal coal

¹This report does not analyze leases previously issued which have been relinquished or the few leases issued in 1980.

leasing program between 1950 and 1980, traces the history of ownership on a lease-by-lease basis, and discusses the business activities and organizational structures of the lessees.

The study is the first to analyze the component of the restructuring of the national coal industry as reflected in changing ownership patterns on Federal coal lands leased to the private sector. This study examines trends and developments in ownership patterns of leased Federal coal land and provides new information concerning the types of companies holding coal leases and the organizational structures used to manage their activities related to coal leases.

FEDERAL COAL: OVERVIEW

According to a 1977 mineral industry survey by the U.S. Bureau of Mines, approximately 54 percent of the demonstrated coal reserve base in the United States lies west of the Mississippi. The U.S. Department of Interior's final environmental statement for the Federal Coal Management Program (April 1979) states:

Federal coal is expected to have a growing importance in national coal production. Of overall Western coal reserves, approximately 60 percent is owned by the Federal Government and an additional 20 percent is dependent on the availability of complementary Federal coal for its production.

Since 1920, the Department of Interior has conducted a leasing program through which the private sector gains permission to mine coal in Federal lands. During the past 60 years, about 17 billion tons of coal on 790,000 acres have been leased. Land currently under lease represents about 12 percent of the total coal reserves managed by the Federal Government. In fiscal year 1978, total production from leased land amounted to about 60 million tons.

No mining of Federal coal is possible without a lease. Issuance of a lease grants to the lessee the exclusive right to mine coal subject to conditions set forth in the lease by the Department of

Interior and by Federal and State laws. Historically, leases have been issued by two methods; competitive bidding at lease sales and noncompetitively through an application process called preference right leasing. About half of all existing leases have been issued by each method, but the Federal Coal Leasing Amendments Act of 1976, which abolished the preference right system, requires competitive leasing of Federal coal.²

Coal mines on land currently under lease contribute an increasing share of the industry's total production. Output from mines on leased land provided 9 percent of the industry's total production in 1979 as contrasted with 1 percent in 1970. Coal is currently mined on 18 percent of the outstanding leases. The remaining 82 percent are in various stages of mine plan development or have experienced no development activity. The Department of Interior estimates that production of coal from land currently under lease will more than triple by 1985 from the 59 million tons produced in 1978 (1979 Federal Coal Management Program Report). Total national production, according to numerous fore-

²Unlike the oil and gas leasing program, no coal leases are issued through the lottery system.

casts, is predicted to increase from 689 million tons in 1977 to approximately 1 billion tons by 1985.³The Department commenced issuing new

³*The Direct Use of Coal*, OTA-E-86 (Washington, D. C.: Office of Technology Assessment, U.S. Congress, April 1979).

leases under the new coal management program in January 1981, after a 10-year moratorium on most leasing. Given the 5- to 12-year leadtime required to develop a coal mine, production from presently unleased land will be relatively small during most of the 1980's.

LEASE ACQUISITION

There are four ways for private parties, corporations, or individuals to obtain Federal coal leases. They are:

- de novo leasing from the Federal Government;
- assignment of an existing lease;
- segregation of an existing lease into two or more leases; and
- acquisition of a leaseholding company.

De novo leasing is used in this report to describe the original issuance by the Federal Government of a lease through competitive bid or a preference right lease application. Although every lease has a de novo origin, only 117, or 22 percent of all outstanding leases, are now owned by the de novo leasing party.

Under the Mineral Leasing Act, lessees are permitted to sell or transfer coal leases to other parties; this is called lease assignment. Seventy-five percent of all outstanding coal leases have been obtained by their current owner after assignment from earlier lessees. In many cases, lease ownership histories show several lease assignments: 146 leases (27 percent) have been as-

signed once in their history; 124 (23 percent) have been assigned twice; 133 leases have been assigned three or more times. One lease has been assigned six times.

Lease assignments are essentially private transactions. Under the Mineral Leasing Act, all assignments must be approved by the Department of Interior, but any cash, property, service agreement, or overriding royalty involved as part of the lease assignment is, with few limitations, a matter of negotiation between the assignor and assignee.

Lease segregation, also called partial assignment, involves the splitting by a lessee of an existing lease into two or more units with a new lease (or leases) being issued for a portion of the acreage. This study found that the current owners of 18 leases (3 percent of the total) obtained them from previous lessees by the segregation process.

The following table summarizes the lease acquisition routes used by the present owners of the 538 outstanding coal leases.

LEASE TITLE TRANSACTIONS

| <i>Means of lease acquisition</i> | <i>Number of leases</i> | <i>Percent of leases</i> |
|-----------------------------------|-------------------------|--------------------------|
| De novo | 117 | 22 |
| Segregation | 18 | 3 |
| Assignment | 403 | |
| One | (146) | (27) |
| Two | (124) | (23) |
| Three or more | (133) | (25) |
| Total | 538 | 100 |

De novo leasing, assignments, and segregation are three methods through which a party

can gain direct *ownership* of a Federal coal lease. Corporate acquisition is a method by which a company can gain *control* of a coal lease without necessarily obtaining ownership title to the lease itself. Scores of mergers and acquisitions affecting the control of hundreds of leases have occurred throughout the history of the leasing program. At least 10 of the 36 wholly owned coal mining companies now owning leases once held them as independent mining

companies, including three companies acquired by major energy companies in 1980. '

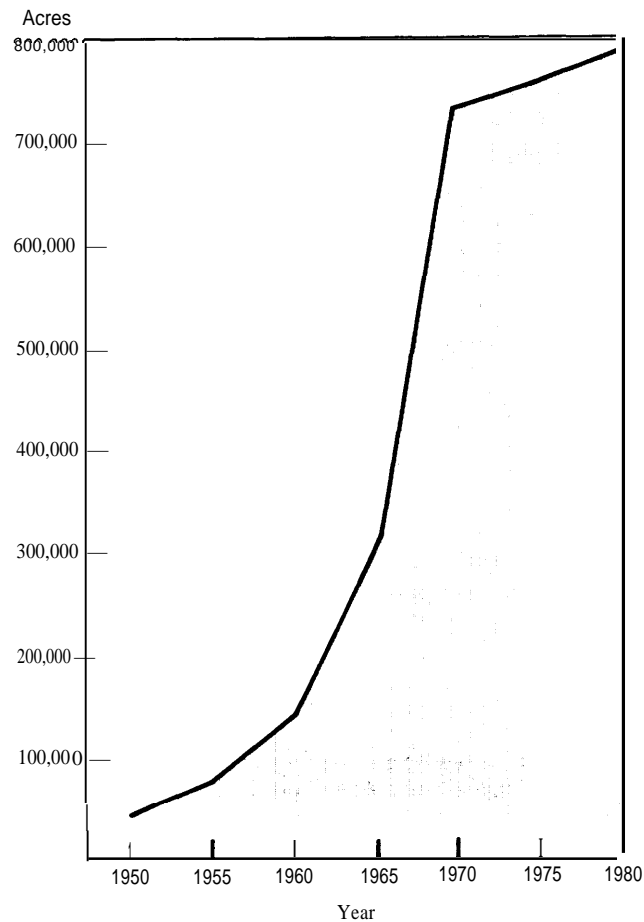
Each of the four methods to acquire ownership or control of leases has been used by the largest leaseholders. This study has noted the tendencies of different companies or industries

'Since corporate acquisitions do not necessarily result in a transfer of title of a coal lease, it is impossible in this survey to quantify precisely the number of corporate acquisitions involving leases.

to use different acquisition methods to different degrees. Most individuals and steel companies, for example, obtained their leases de novo. On the other hand, only 16 of the 110 leases acquired by energy majors were obtained de novo. Half were obtained by assignment, at least 31 percent by the purchase of the leaseholding company, and 2 percent by segregation.

Figure 1 shows the total number of acres under Federal coal lease from 1950-80.

**Figure 1.—Total Acres of Federal Coal Under Lease
1950-80**



SOURCE Office of Technology Assessment.

THE BUSINESS ORGANIZATION OF COAL LESSEES

Changes in the organization and management of coal mining enterprises is one measure of restructuring within the industry. This study examines trends in business reorganization reflected by changes in Federal coal lease ownership between 1950 and 1980. Four types of organizational structures were analyzed. They are:

- unincorporated individuals—persons, including sole proprietorships, partnerships, and estates;
- *independent corporations—companies not wholly owned by one or more other companies;*
- *subsidiary corporations—companies wholly owned by a single other company; and*
- *multicorporate entities—companies wholly owned by two or more companies (such as joint ventures) and two or more companies sharing ownership interests in leases.*

Distinct and important trends in business reorganization of the coal mining industry can be seen in the changes in coal lease ownership patterns between 1950 and 1980. The early dominance of small, single business, independent lessees has shifted to large, diversified, complex business entities. Historically, the coal leasing program has not served as a policy instrument through which the Government has influenced business organization trends in the coal industry. Leasing patterns have been the outcome of nongovernmental decisions and factors, specifically the business priorities of the lessees themselves and marketplace economics.

Table 1 and figure 2 trace the history of lease ownership by the four types of business organizations examined in this survey. The table and figure show that unincorporated individuals have held a steadily decreasing percentage of the Federal land under coal lease between 1950 and 1980. They reveal the dominant role of independent corporations as lessees through 1970 and their decline in relative importance since then. They show that lessees which are subsidiaries of parent corporations have increased their holdings to a position of dominance today. And they show that multicorporate entities are the newest type of business organization to attain significance in Federal coal leasing.

Unincorporated Individuals

In the early decades of the leasing program, most leases were held by individuals in their own name. In 1950, individuals held 27 percent of all acres under lease, collectively constituting the second largest category of lessee identified in the survey. The role of individuals has steadily declined in relative importance so that today they hold only 5 percent of all land under lease. There has been little new leasing by individuals in the past decade and there is little likelihood of substantial production on most leases held by individuals.

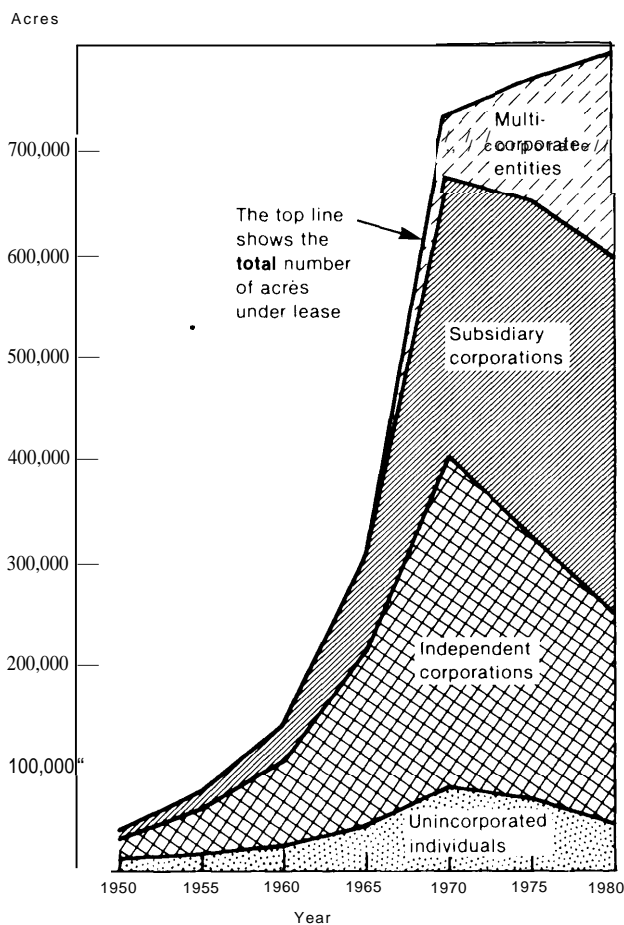
The decline in leasing by unincorporated individuals reflects the decreasing use of the "sole proprietorship" business organization by small

Table 1.—Number of Acres Under Lease and Percent of Total Leased Land by Type of Business Organization, 1950-80

| Year | Unincorporated Individuals | | Independent corporations | | Subsidiary corporations | | Multi corporate entities | | Uncategorized companies | |
|------|-------------------------------|--------------------------|-----------------------------|--------------------------|----------------------------|--------------------------|-----------------------------|--------------------------|----------------------------|--------------------------|
| | Acres (#) | Total land leased (%) | Acres (#) | Total land leased (%) | Acres (#) | Total land leased (%) | Acres (#) | Total land leased (%) | Acres (#) | Total land leased (%) |
| 1950 | 11,129 | 27% | 18,504 | 45% | 10,824 | 26% | — | 0/0 | 1,035 | 20/0 |
| 1955 | 17,618 | 23 | 40,495 | 53 | 15,921 | 21 | — | 0 | 1,915 | 3 |
| 1960 | 25,678 | 18 | 79,715 | 55 | 36,058 | 25 | — | 0 | 2,453 | 2 |
| 1965 | 41,475 | 13 | 169,402 | 55 | 91,690 | 30 | 640 | <1 | 5,147 | 2 |
| 1970 | 78,935 | 11 | 319,847 | 44 | 271,329 | 37 | 60,504 | 8 | 2,643 | <1 |
| 1975 | 66,515 | 9 | 257,637 | 34 | 321,576 | 42 | 112,418 | 15 | 6,848 | 1 |
| 1980 | 43,215 | 5 | 204,612 | 26 | 343,865 | 43 | 197,491 | 25 | 1,845 | <1 |

SOURCE Office of Technology Assessment

Figure 2.— Number of Federal Coal Acres Under Lease by Type of Business Organization, 1950-80



SOURCE: Office of Technology Assessment

mining interests in favor of some form of incorporated business structure. Incorporation provides increased protection over sole proprietorships for mine operators against personal liability for corporate actions as well as other business advantages.

Other reasons for the decline in leaseholdings by unincorporated individuals include the abolition of the preference right leasing program, a popular lease acquisition route for individuals, including land speculators and land acquisition agents operating under contract to corporations; the leasing moratorium which increased the value of existing leases and induced some individuals to sell their holdings; and the diligent development requirements defined in the 1976 coal leasing regulations which may have acted

as an incentive for some individuals to sell leases that they could not mine.

Corporations and Subsidiaries

Various types of corporate structures control 94 percent of all outstanding leases. The largest share, 69 percent of all leases, are owned either by independent corporations or companies that are wholly owned subsidiaries of one parent company.

In 1950, 45 percent of all leased land was held in the name of independent corporations and 26 percent of all land under lease was held by subsidiaries. By 1980, the figures had almost exactly reversed, as 26 percent of all land was held by independent companies and 43 percent by subsidiaries.

The shift in leaseholdings from independent to subsidiary companies is particularly notable among those corporate lessees whose principal business activity is coal mining. In 1950, 18 independent coal mining companies comprised the largest single leaseholding category identified in the survey. At that time, only three coal mining subsidiaries of noncoal parents held leases. By 1980, however, 36 lessees were categorized as wholly owned coal mining subsidiaries. Together these companies hold 36 percent of all land under lease. In contrast, the share of leased land held by independent coal companies decreased over the last 30 years from 35 to 7 percent.

In many cases, there is a direct link between the decline of independent coal companies and the growth of subsidiaries. At least 10 of the wholly owned coal mining subsidiaries holding leases today previously operated as independent companies. A larger number of independent coal companies went out of business after sale of their assets—including coal leases—to noncoal companies which have since organized coal mining subsidiaries to which the leases were then assigned.

Landholding companies provide another example of the trend towards leasing by subsidiary rather than independent companies. In 1960, 8 percent of all land under lease was controlled by independent landholding companies which hoped to profit from the eventual assignment of their leases to coal development compa-

nies. Today the independent landholding companies hold less than 1 percent of all land under lease. On the other hand, starting in the early 1960's, leaseholdings by companies which are subsidiaries of companies with principal business activities other than coal mining has increased steadily and today nine landholding subsidiaries control more acreage than the independents ever did.

The two leasing trends among landholding companies noted above appear to be unrelated. Most independent landholding companies acquired leases as speculators and they have gradually liquidated their holdings over the past decade. Many of the companies now holding leases—most notably the energy companies and utilities—have formed landholding subsidiaries to which leases have been assigned. These subsidiary landholding companies are legal entities through which large corporations hold land, normally not for speculation, but for future development.

Multicorporate Entities

OTA has defined multicorporate entities as companies wholly owned by two or more companies (such as joint ventures) or two or more companies sharing ownership of leases.

In the past 15 years, 17 multicorporate entities have acquired Western coal leases. These include two companies completely owned by two or more corporations. One of these, Peabody Coal Co., has been owned since 1977 by the Peabody Holding Co., which in turn is owned by six corporations. The second company is Ark Land Co., which is a subsidiary of Arch Minerals Corp. Arch Minerals in turn is owned by three companies: 50 percent by Ashland Oil Corp., 25 percent by Hunt Industries (partnership of five Hunt family trusts) and 25 percent by Hunt Petroleum Corp. (a partnership of six Hunt trusts, including the five owners of Hunt Industries).

In addition to these two companies, the multicorporate entities category of business organiza-

tions includes eight joint ventures, each of which is owned by two companies. The joint ventures and their parent companies are listed in the following table.

| <i>Joint Venture</i> | <i>Participating corporations</i> |
|----------------------------|--|
| Colowyo Coal Co. | W. R. Grace & Co. and Hanna Mining Co. |
| North Antelope Coal Co.. | Peabody Coal Co. and Panhandle Eastern Pipeline co. |
| Black Butte Coal Co. . . . | Peter Kiewit Sons and Union Pacific Corp. |
| Medicine Bow Coal Co. . | Arch Minerals Corp. and Union Pacific Corp. |
| Bridger Coal Co. | Pacific Power & Light Co. and Idaho Power Co. |
| Stansbury Coal Co. | Ideal Basic Industries and Union Pacific Corp. |
| Cumberland Coal Co. . . | Peter Kiewit Sons and Union Pacific Corp. |
| Western Coal Co.. | Public Service Co, of New Mexico and Tucson Electric co. |

Finally, ownership of seven blocks of leased land is 'shared by two or more corporations which hold an undivided interest in the leases. The largest group of leases in this category includes a block of southern Utah leases held by resource development subsidiaries of three utilities. Secondly, Consolidation Coal Co. and Kemmerer Coal Co. share the ownership of 10 leases in Utah.⁵ Consolidation Coal also shares ownership of a Wyoming lease with Mobil Oil Corp.⁶ In addition, a subsidiary of The Coastal Corp. and Equipment Rental Services share two Utah leases. Next, subsidiaries of Texas Eastern Transmission Corp. and Eastern Gas & Fuel Associates hold a lease in New Mexico as do Peabody Coal Co. and Thermal Energy Co. Finally, four Montana leases are owned by subsidiaries of Pacific Power & Light Co. and Peter Kiewit Sons.

⁵In 1980, Consolidation was assigned a 50-percent share of three leases in Colorado held by Kemmerer Coal Co.

⁶In 1980, Consolidation applied for approval of assignment to Mobil of its share in the Wyoming lease.

COAL LEASE OWNERSHIP DISTRIBUTION BY BUSINESS ACTIVITY CATEGORY

The appearance of different types of companies in the coal industry besides the traditional independent, single interest, mining company is the most obvious aspect of the restructuring taking place within the industry and the development which has received the most attention of public policy makers and industry analysts. This study examined leasing patterns and trends among lessees grouped into 13 business categories.⁷ The 13 categories are:

- Electric utilities;
- Energy companies;
- Peabody Coal Co.;
- Steel companies;
- Independent coal companies;

⁷The categories include 10 industries, two individual companies that were classified as distinct business categories for various reasons and an other category for the remaining lessees. Each of the 13 business categories controlled or controls at least 5 percent of all land under lease at some time between 1950 and 1980. (See ch. 2, sec. M, *Methodology*)

- Oil and gas (minor) companies;
- Unincorporated individuals;
- Natural gas pipeline companies;
- Nonresource-related diversified companies;
- Kemrnerer Coal Co.;
- Metals and mining companies;
- Landholding companies; and
- "Other" lessees.

Table 2 summarizes the findings of this study with regard to the relative growth and decline in leaseholdings by the members of each of the 13 categories. The table shows the steady increase in lease ownership by the electric utilities and by the major energy companies and the recent involvement of nonresource-diversified companies and natural gas companies. It shows the impact on coal lease ownership patterns of the 1977 sale of Peabody Coal Co. to a six-firm holding company. It shows the early dominance of leasing by independent coal companies and unincorporated individuals and their steady

Table 2.—Number of Acres and Percent of Total Leased Land Held by Business Activity Category

| | 1950 | | 1955 | | 1960 | | 1965 | | 1970 | | 1975 | | 1980 | |
|---|----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|
| | Acres held (#) | Land leased (%) | Acres held (#) | Land leased (%) | Acres held (#) | Land leased (%) | Acres held (#) | Land leased (%) | Acres held (#) | Land leased (%) | Acres held (#) | Land leased (%) | Acres held (#) | Land leased (%) |
| Electric utilities. | 0 | 0 | 2,000 | 3% | | | 45,363 | 15% | 132,038 | 18% | 142,077 | 19% | 163,259 | 21% |
| Energy companies | 0 | 0 | 0 | 0 | 0 | 0 | 9,491 | 3 | 132,274 | 18 | 138,409 | 18 | 155,024 | 20 |
| Peabody Coal Co. | 0 | 0 | 0 | 0 | 0 | 0 | (6,251) | (2) | (59,121) | (8) | (68,923) | (9) | 62,009 | 8 |
| Steel companies | 4,993 | 12 | 14,817 | 19 | 19,888 | 14 | 34,158 | 11 | 46,114 | 6 | 49,448 | 6 | 60,015 | 8 |
| Independent coal companies | 14,584 | 35 | 25,022 | 33 | 41,557 | 29 | 77,273 | 25 | 78,297 | 11 | 58,837 | 8 | 55,410 | 7 |
| Oil and gas (minor) companies | 0 | 0 | 0 | 0 | 0 | 0 | 2,080 | 1 | 26,911 | 4 | 42,193 | 6 | 45,926 | 6 |
| Unincorporated individuals | 11,129 | 27 | 17,618 | 23 | 25,678 | 18 | 41,475 | 13 | 78,995 | 11 | 66,515 | 9 | 43,215 | 5 |
| Natural gas pipeline companies | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32,522 | 4 | 36,317 | 5 |
| Nonresource-related diversified companies | 0 | 0 | 0 | 0 | 0 | 0 | 4,610 | 1 | 10,015 | 1 | 12,580 | 2 | 35,675 | 5 |
| Kemmerer Coal Co. | 475 | 1 | 1,752 | 2 | 6,849 | 5 | 18,504 | 6 | 33,793 | 5 | 33,988 | 4 | 32,191 | 4 |
| Metals and mining companies | 5,009 | 12 | 5,009 | 7 | 9,266 | 6 | 17,708 | 6 | 107,504 | 15 | 118,300 | 15 | 17,620 | 2 |
| Landholding companies. | 1,360 | 3 | 4,576 | 6 | 11,504 | 8 | 13,411 | 4 | 43,581 | 6 | 26,225 | 32 | 4,661 | <1 |
| "Other" lessees. | 2,907 | 7 | 3,240 | 4 | 18,288 | 13 | 39,134 | 13 | 41,153 | 6 | 37,051 | 5 | 77,861 | 10 |

NOTE Uncategorized lessees hold less than 2 percent of land under lease at any analysis date

Numbers might not add to 100 percent because of the holdings of uncategorized lessees

Numbers in () tabulated in metals and mining category (1970 and 1975) or in independent coal company category (1965)

| | | | | | | | |
|-----------------------|-------------|-----------------|-------------|-------------|---------------|-------------|----------------|
| Uncategorized Lessees | 1,035 2% | 1,915 3 1/2% | 2,453 2% | 5,147 2% | 2,643 <1 % | 6,848 1% | 1,845 < 1 % |
|-----------------------|-------------|-----------------|-------------|-------------|---------------|-------------|----------------|

SOURCE Off Ice of Technology Assessment

decline in relative importance over the past 30 years. It shows the early participation of the steel and metals and mining industries and Kemmerer Coal Co. and the gradual reduction in the relative position of the steel industry, the swings in metals and mining company leasing, and the continuing involvement of Kemmerer. It shows the rise of the independent landholding company in the active leasing periods of the late 1950's and early 1960's when many leases were let, followed by the liquidation of their holdings in the lease-tight moratorium era of the 1970's.

Table 2 and figure 3 also summarize the absolute changes in leaseholdings that have occurred over the past 30 years. They show the steady rise in acreage held by the steel companies, independent coal companies and unincorporated individuals through 1970, followed by the slow decline in the holdings of the latter two categories since then. Table 2 and figure 3 also illustrate how the significant but relatively modest increases in the holdings of these three groups during the 1960's compare to the more substantial acquisitions of some new entrants to leasing in that period.

Electric Utilities

Electric utilities currently own more Federal coal land than any other industry group. Increasing their holdings from 8,263 acres in 1960 to 163,259 acres in 1980, utilities now control 21 percent of all land under lease. Seventeen utilities now hold leases.

More than any other industry group examined in this survey, utilities have undergone complicated internal restructuring related to coal lease management. Several utilities now hold leases in the name of one or more wholly owned coal mining companies, multifuel resource development companies, landholding companies, or corporate entities without employees or business activities. Also, utilities have been very active in joint venture leasing and multicorporate development projects. The internal restructuring of utilities and their involvement in multicorporate leasing ventures appear to indicate a policy decision by some utility managements that coal leasing and mining activities should be separate from electrical generation activities because of the difference in

management skills required. Furthermore, this division enables utilities, as a regulated industry, to distinguish clearly among totally regulated, partially regulated and unregulated business activities.

Utilities are now a major producer of coal. The industry's output totaled 11 percent of the Nation's entire coal production in 1979 compared to just 2.2 percent in 1961. Most of this coal is "captive" production, destined for powerplants owned by the utility operating the mine, although the industry is increasingly selling coal on the open market. Utilities play a unique role in the coal industry because of their growing status as a major producer of coal as well as their more long term position as the country's major coal consumers. Utilities burned 77 percent of all domestically used coal in 1979.

Energy Companies

This study examined the leaseholdings of the 18 largest private energy companies based on total worldwide petroleum production. Eleven of the 18 companies now own Federal coal leases. Together they control 155,024 acres, 20 percent of all land under lease.

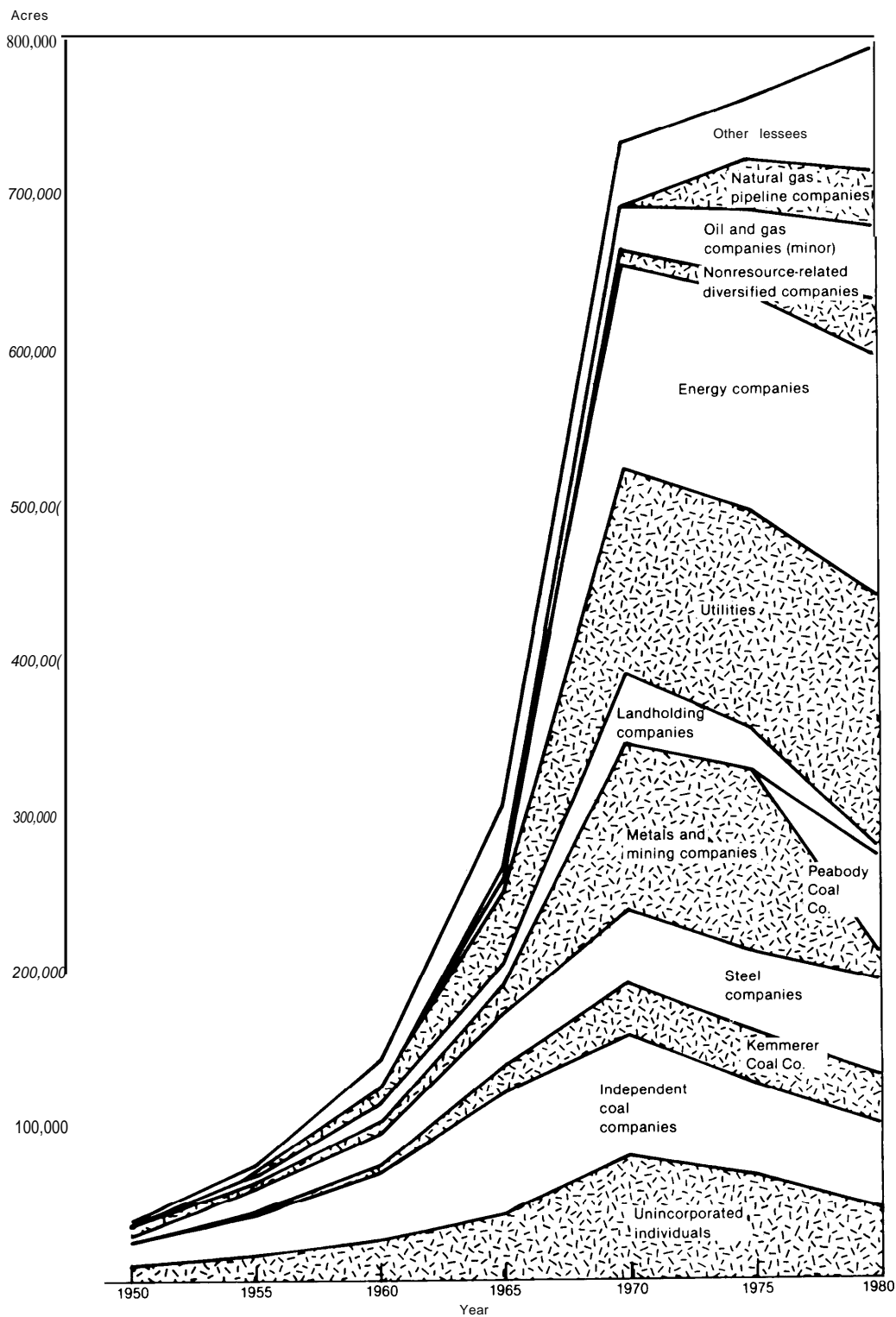
The late 1960's marked the period of largest growth in lease holdings by energy majors, well before the Arab oil embargo and the energy conscious 1970's. Most leases acquired by energy majors have remained under their control, though many have been assigned to newly formed subsidiaries within the companies' respective management structures.

Most Western coal leases have been obtained by the energy companies through lease assignment or through the purchase of a leaseholding company, rather than by de novo leasing from the Government. This kind of merger and acquisition activity is a component of the strategy begun by the oil majors in the 1960's to gain their initial coal reserves in the East.

Peabody Coal Co.

Peabody Coal Co. is the largest single company holding leases in the West. It owns 62,009 acres of Federal coal leases, 8 percent of the total land under lease. Once an independent compa-

Figure 3.— Number of Federal Coal Acres Under Lease by Business Activity Category, 1950-80



SOURCE Office of Technology Assessment

ny, it was acquired by Kennecott Copper Corp. in 1968. In 1977, Kennecott divested the company to the Peabody Holding Co., comprised of six corporations with business interests as diverse as aerospace, mineral extraction, and life insurance. Peabody now holds leases in five Western States,

Steel Companies

Steel companies were among the earliest participants in Federal coal leasing, owning 12 percent of the land under lease in 1950. Their holdings have steadily grown, but the percentage of total leased acreage controlled by the industry has dropped to 8 percent today. Most steel industry coal production, like that of utilities, is for "captive" use.

Unlike most other coal lessees, steel companies have leased primarily metallurgical grade coals in Utah, Colorado, and Oklahoma.

Independent Coal Companies

In 1950, 18 independent coal companies constituted the largest single group of lessees, controlling 35 percent of all land under lease, or nearly 15,000 acres. From 1950 to 1970, leaseholdings by independent coal companies grew steadily to over 78,000 acres, but their share of total leased acreage dropped to 11 percent. Today, independent coal companies control nearly 56,000 acres, which is, however, only 7 percent of total leased acreage. Over 60 independent coal companies have held leases, though none of the 18 leaseholding independents in 1950 is among the list of 21 independents in 1980.

Independents are still the fifth largest leaseholding group and several present lessees—notably Garland Coal Mining Co., North American Coal Co., and Energy Fuels Co.—have used the leasing program to build large coal reserve bases. Nonetheless, small independent coal companies in the West are in a precarious position today. Rising mining costs, the reference of the utilities for large long-term supply contracts, and slow growth in local domestic or industrial coal use in the West have restricted the business opportunities of independent coal companies.

Oil and Gas Companies (Minor)

Several oil and gas companies not appearing in the energy or natural gas pipeline categories have acquired coal leases in the past 15 years. Eight such companies now control 45,926 acres, 6 percent of the total. The lessees in this category include small companies, such as the Hiko Bell Mining and Oil Co., and very large companies, such as Kerr-McGee Corp. and Quaker State Oil Refining Corp. Holdings by these companies have grown steadily since 1965.

Unincorporated Individuals

The role of unincorporated individuals in the leasing program, at one time second only to the independent coal companies, has greatly declined in relative importance. From 1950 to 1970, acreages held by unincorporated individuals grew from over 11,000 to nearly 79,000 acres, but their share of the total leased acreage dropped from 27 to 11 percent. Today, individuals hold over 43,000 acres, or 5 percent of the total. (See *Business Organization of Coal Lessees*, pp. 6-8.)

This study identified three categories of individual coal lessees: bona fide coal miners operating "sole proprietorship" mines; persons working directly and primarily in the coal industry, such as officials at coal companies and coal brokers or salesmen; and land agents, who do not specialize in coal properties, acting either on their own behalf or under contract to corporations interested in acquiring coal reserves.

Natural Gas Pipeline Companies

Natural gas pipeline companies are among the most recent entrants to coal leasing. All 27 leases now held by the industry were acquired in the 1970's. Six natural gas companies control 36,317 acres, about 5 percent of the land under lease. All but two of the leases were obtained by assignment during the leasing moratorium of the past decade—i.e., there was a substantial change in the pattern of lease ownership even during this period when opportunities to acquire leases de novo were limited.

Nonresource-Related Diversified Companies

The nonresource-related diversified business category includes companies with principal lines of business which are not energy or mineral resource related, but which complement or could be integrated with resource development. It includes—e. g., General Electric Co., which sells electric generation equipment—and chemical companies, which might use coal as a chemical feedstock.

The companies in this category are latecomers to Western coal leasing. They controlled just 1 percent of all land under lease in 1970. Their holdings grew to 35,675 acres by 1980—5 percent of the total land under lease.

Kemmerer Coal Co.

Kemmerer Coal Co. is one of the oldest Western coal producers and among very few surviving companies in the coal industry founded and headquartered in the West. Since 1926, it has been owned by the Lincoln Corp., a holding company of Kemmerer family interests.

Kemmerer Coal now owns 32,191 acres of leased land, 4 percent of the total, down from its peak of 33,988 acres in 1975. The company reached a peak of relative importance in 1965, with 6 percent of the total land under lease, or 18,504 acres. The company has mined coal in the southwestern Wyoming coalfields for many decades.

In September 1980, the Kemmerer family announced its intention to sell Kemmerer Coal Co. If completed, this transaction will cause the largest single shift in coal lease ownership since Peabody was purchased by its holding company in 1977.

Metals and Mining Companies

Metals and mining companies, like steel companies, entered Western coal leasing early. Total relative holdings declined from 12 percent of all leased land in 1950 to 6 percent in 1965, they then grew steadily to 15 percent in 1970, only to drop over the past 5 years to 2 percent today. During the period from 1950 to 1975, their holdings increased steadily in absolute

terms from just 5,000 acres to over 118,000 acres, then decreased sharply to about 18,000 acres in 1980.

The major reasons for the rise in leaseholdings by metals and mining companies in the late 1960's were the acquisition of Peabody Coal Co. by Kennecott Copper Corp. and the land acquisition programs of Amax, Inc., and Utah International, Inc. The principal reasons for the decline of leaseholdings over the past 5 years have been the acquisition of Utah International by General Electric Co. and Kennecott's divestiture of Peabody.

Landholding Companies

Independent landholding companies, like individual land agents, figured prominently in the early history of the leasing program but have largely liquidated their holdings. Their relative importance peaked in 1960 when they controlled 8 percent (11, 504 acres) of all land under lease. Their holdings continued to rise until 1970, when they owned over 43,000 acres or 6 percent of leased land. The seven companies in this category now control only 4,661 acres, less than 1 percent of the total land under lease.

Independent landholding companies acquired most of their leases de novo or by assignment from individuals in the 1950's and 1960's when leases could be easily and inexpensively obtained. The leasing moratorium of the 1970's and the abolition of the preference right leasing program restricted new leasing opportunities thereby increasing the assignment value of land already under lease. As a result, most independent land companies sold their leases in the 1970's.

“Other” Lessees

This last category includes lessees which do not fit into one of the other 12 groups established during this survey. The percentage of acres held by lessees in this category has varied from 4 percent in 1955 to 13 percent in 1960 and 1965. They presently hold about 10 percent of all land under lease. The following table lists some of the lessees currently falling in the “other” category.

| <i>Controlling interest of "other" lessees</i> | <i>Principal activity of controlling interest</i> |
|--|---|
| Peter Kiewit Sons, Inc. | Construction and mining |
| Union Pacific Corp. | Railroad holding company |
| Ideal Basin Industries, Inc. | Cement |
| Mountain States Resource Co. | Resource development |
| Carbon Emery Bank | Bank |
| Geo Resources Exploration, Inc. | Petroleum industry materials |
| Church of the Latter Day Saints | Religious institution |

IMPLICATIONS OF COAL LEASE OWNERSHIP PATTERNS

More lessees are participating in the coal leasing program in 1980 than in 1950, but the list of lessees is increasingly dominated by large multi-interest companies and, on the average, the lessee of today controls considerably more acreage than its predecessors. The number of lessees has nearly doubled during the past 30 years from 84 to 159, but the total acreage of land under lease has jumped eighteenfold during the same period. While the average lessee controlled 494 acres of leased land in 1950, the average lessee controls 4,975 acres in 1980. On the other hand, the number of distinct industries holding major shares in Federal leasing is increasing. In 1950, only four business activity categories identified in this survey held at least 5 percent of all land under lease. By 1980, nine such categories were identified. These leasing patterns are summarized in tables 3 and 4.

Three trends resulting from increased leasing by widely different types of companies, each of which controls large acreages of leased land, can be noted. The first trend is toward involvement in leasing by horizontally integrated companies. The energy companies, natural gas pipeline companies, and smaller oil and gas companies

together own 31 percent of all outstanding coal leases. For these companies, involvement in coal leasing is part of a strategy to branch into several energy resource fields.

Growing involvement of companies for which coal reserve acquisition represents a vertical integration of business activities is a second trend in lease ownership patterns. Steel companies and electric utilities—which together own 29 percent of all land under lease today—are the two principal examples of leasing by vertically integrated companies. Steel companies have for decades mined significant quantities of coal and have participated in the leasing program since its inception. The growth of utility involvement in Western leasing since 1965 to its position as the largest leaseholding business activity category in 1980 represents a new and significant type of vertical integration among lessees. The coal leasing program has provided an important avenue for utility entry into the coal industry. Utilities provided 11 percent of the Nation's coal output in 1979. They own 21 percent of all Federal coal land under lease and produced 30 percent of all coal mined on Federal land. Approximately one-fourth of all utility "captive" coal production was mined from leased Federal reserves.

A third trend reflects the growing involvement of large, already diversified companies in coal leasing. These include metals and mining companies—e.g., which are diversifying their mineral extraction skills to include coal. In addition, it includes chemical and high-technology companies for which entry into the coal industry represents a diversification not integrated with existing business activities.

Table 3.—Average Number of Leases and Average Number of Acres Held per Lessee, 1950-80

| Year | Average number of leases held per lessee | Average number of acres held per lessee |
|----------------|--|---|
| 1950 | 1.04 | 494 |
| 1960 | 2.69 | 1,198 |
| 1970 | 2.69 | 4,073 |
| 1980 | 3.38 | 4,975 |

SOURCE Office of Technology Assessment.

Table 4.— Business Activity Categories Holding at Least 5 Percent of All Leased Land, 1950-80

| 1950 | 1965 | 1980 |
|-----------------------------|-----------------------------|------------------------------------|
| Independent coal companies | Independent coal companies | Electric utilities |
| Unincorporated Individuals | Unincorporated individuals | Energy companies |
| Metals and mining companies | Kemmerer Coal Co. | Peabody Coal Co. |
| Steel companies | Metals and mining companies | Steel companies |
| | Steel companies | Independent coal companies |
| | Electric utilities | Oil and gas (minor) companies |
| | | Unincorporated individuals |
| | | Natural gas pipeline companies |
| | | Non resource diversified companies |

SOURCE Office of Technology Assessment

The shift in leaseholdings to large, diversified and integrated companies suggests several observations. First, lease development decisions are increasingly shaped by priorities which reflect business opportunities and capital availability unrelated to coal development. Secondly, these lease ownership changes can cause a relocation of final decisionmaking authority affecting coal development from local managers to those sometimes working hundreds or thousands of miles from lease sites. Thirdly, the internal business arrangements established by large companies to manage coal leases result in complex coal development decisionmaking processes. While all three of these trends might contribute to increased efficiency in the coal industry, they make understanding coal industry priorities an increasingly difficult task.

Another result of lease ownership changes is the appearance of more lessees with the financial resources available for coal development that far exceed the resources available to the earlier, smaller coal leasing companies. Increasing participation by larger and more complex corporate entities is not surprising considering the larger capital requirements posed by today's coal development.

Next, the increasing tendencies of the large, diversified companies holding leases to establish multicorporate development projects could raise competition concerns not posed when leasing was dominated by many small independent companies. Multicorporate lease development ventures provide a means for corporations to distribute the risks involved in undertaking large-scale coal development projects. They also increase the capital generating capacity of the project as a whole. At the same time, they increase the level of intercorporate information

exchange and communication. Finally, joint venturing through subsidiaries far removed structurally from the parent organization has recently provided indirect entry into leaseholding by railroads. (Railroads are prohibited by the Mineral Leasing Act of 1920 from direct lease ownership.)⁹

Several recent studies have pointed to the potential importance of Federal coal leasing policies as a determining factor in the organization and development of the coal industry over the next several decades. The Harvard Business Study, Energy Future—e. g., observes that “competition can be protected by methods short of horizontal divestiture, such as existing antitrust laws, setting limits on the share of reserves any single firm can control, and innovative leasing policies. The last can be especially effective.” The present study shows that over the past 30 years, ownership patterns on leased public coal land have generally been similar to the pattern of industry restructuring typical for private land. Indeed, some developments on Federal coal leases—such as the growing role of utilities as “captive” coal producers—seem to be lead indicators rather than causes of the changing character of the American coal industry.

⁹See ch. 2, sec. M, *Other Leaseholders*, for further information.

¹⁰A recent Justice Department report recommends striking from Federal law prohibitions against the issuance of Federal coal leases to railroads or their affiliates. (*Competition in the Coal Industry*, report of the U.S. Department of Justice, pursuant to sec. 8 of the Federal Coal Leasing Amendments Act of 1976 for fiscal year 1979; U.S. Department of Justice, Antitrust Division, November 1980,)