

Acronyms, Abbreviations, and Glossary

Acronyms and Abbreviations

AAR	— Association of American Railroads	F.R.	— Federal Register
ABS	—Automated Block Signals	F. Supp.	— Federal Supplement
ACLDS	— Automated Coal Lease Data System	FWS	— Fish and Wildlife Service
AMC	— American Mining Congress	GAO	— General Accounting Office
AQCR	— air quality control region	GMO	—General Mining Order
AQS	— air quality standards	GPO	—Government Printing Office
AVF	— alluvial valley floor	ICC	— Interstate Commerce Commission
BACT	—best available control technology	KRCRA	— known recoverable coal resource area
BIA	— Bureau of Indian Affairs	LMU	—logical mining unit
BLM	— Bureau of Land Management	MARCA	— Mid-Continent Area Reliability Coordination Agreement
BN	— Burlington Northern Railroad	MER	— maximum economic recovery
bt	—billion tons	mt	— million tons
CBO	—Congressional Budget Office	mt	— million tons per year
CEUM	—Coal Electric Utility Model (Forecasts)	NAAQS	— National Ambient Air Quality Standards
CFR	— Code of Federal Regulations	NCA	— National Coal Association
CNW	—Chicago and Northwestern Railroad	NERC	— National Electric Reliability Council
CSMRI	—Colorado School of Mines Research Institute	NEPA	— National Environmental Policy Act of 1969
CTC	—Centralized Traffic Control	NETS	— National Energy Transportation System
DEIS	— draft environmental impact statement	NSPS	— new source performance standards
DOE	— Department of Energy	OSM	— Office of Surface Mining
DOI	— Department of the Interior	OTA	— Office of Technology Assessment
DRI	— Data Resources, Inc.	PILT	— payment in lieu of taxes
DSL	— Department of State Lands (Montana)	PKS	— Peter Kiewit Sons, Inc.
EA	— environmental assessment	PPL	— Pacific Power & Light Co.
EDF	— Environmental Defense Fund	PRB	— Powder River basin
EGR	— electric growth rate	PSD	— prevention of significant deterioration
EIA	— Energy information Administration	PRLA	— preference right lease application
EIS	— environmental impact statement	SERI	— Solar Energy Research Institute
EMARS	— Energy Minerals Activity Recommendation System	SID	— Secretarial Issue Document
EPA	— Environmental Protection Agency	SIP	— State implementation plan
E.R.C.	— Environmental Reporter Cases	SMCRA	— Surface Mining Control and Reclamation Act of 1977
ERCOT	— Energy Reliability Council of Texas	SPP	— Southwest Power Pool
ETSI	— Energy Transportation Systems Inc.	SunEDCO	— Sun Energy Development Co.
F.2d	— Federal Reporter, Second Series	TSP	— total suspended particulate
FCLAA	— Federal Coal Leasing Amendments Act of 1976	UP	— Union Pacific Railroad
FEIS	— final environmental impact statement	U.S.C.	— United States Code
FERC	— Federal Energy Regulatory Commission	USGS	— U.S. Geological Survey
FLPMA	— Federal Land Policy and Management Act of 1976	WSCC	— Western Systems Coordination Council

Glossary

Acre Foot: A measure of water 1 ft deep by 1 acre in area, or 43,560 cubic feet.

Alluvial Valley Floor: Those stream valleys located west of the 100th Meridian which: 1) are underlain by unconsolidated gravel, sand, silt, and clay; 2) have a stream flowing through them; 3) have a generally flat valley floor topographic surface; and 4) have an agricultural importance. The relative importance of these valleys is a function of the water supplies available in the specific valley area. The agricultural activities generally include irrigated or subirrigated hay lands, developed pasture lands, critically important grazing areas, or lands that could be developed for any of these purposes.

Approximate Original Contour: The surface configuration achieved by backfilling and grading the mined area so that the reclaimed area, including any terracing or access roads, closely resembles the general surface configuration of the land prior to mining and blends into and complements the drainage pattern of the surrounding terrain, with all highwalls and spoil piles eliminated.

Aquifer: A subsurface zone that yields economically important amounts of water to wells; a water-bearing stratum or permeable rock, sand, or gravel.

Area Strip Mining: A mining technique characterized by the use of a power shovel, dragline, or bucket wheel excavator for removing overburden. This type of mining first proceeds by constructing a trench or box cut in the overburden to uncover the initial strip of coal that is to be mined. After the coal has been removed from the bottom of the box cut, the "spoil" or overburden material covering the next strip of coal is removed and placed in the void left by the mining of the preceding strip of coal. Mining proceeds with succeeding operations until the limits of the mining area are reached.

Automated Coal Lease Data Systems (ACLDS): A computerized information system maintained by the Bureau of Land Management of the Department of the Interior for Federal coal leases and lease applications. ACLDS contains a wide variety of technical and administrative information on every lease and preference right lease application.

Best Available Control Technology (BACT): A technology or technique that represents the

most effective pollution control that has been demonstrated, used to establish emission or effluent control requirements for a polluting industry.

British Thermal Unit (Btu): The quantity of heat energy required to raise the temperature of 1 lb of water 1° F at, or near, its point of maximum density (39.1° F).

Continuous Miner: A machine with rotating cutting bits used in underground mining to cut relatively soft coal from the coal face. The coal is removed by breaking the coal from the face and then transferring it to loading machines.

Continuous Operation: Requirement that a Federal lease must produce at least an annual average of one percent of logical mining unit reserves after diligent development has been achieved.

Conventional Mining: An underground mining technique in which specialized machines are used in sequence to perform individual mining operations. The mining face is first undercut with a cutting machine resembling a chain saw. A drill is then used to bore holes into the face at an appropriate spacing; the holes are then filled with an explosive. After blasting, the coal is fragmented and allowed to drop on the floor of the mine in front of a new face. The coal is removed, the roof is bolted for support, and the mining sequence is repeated. Conventional mining accounts for 35 to 40 percent of underground mining in the United States.

"De novo" Leasing: The original issuance of a lease or prospecting permit by the Federal Government.

Development Potential: An assessment of the prospects for a lease or lease block being developed and mined within the next decade, taking into consideration the reserves, mining conditions, geographic location, status of adjacent properties, surface resource values, environmental impacts, potential markets, transportation availability and community infrastructure. Three development classifications were used by OTA in this report:

- Favorable-development potential—The lease or lease block has favorable development characteristics overall; the lease(s) meet the threshold criteria for a viable mining property; there are no major technical or permitting problems or uncertainties associated with the lease development.
- Uncertain development potential—The lease

or lease block has uncertain development potential because development is contingent on factors such as transportation availability or synfuels development or because of lack of information about the lessee's development intentions, Property characteristics can be good or marginal.

- **Unfavorable development potential**—The lease or lease block has unfavorable development potential, generally because it has one or more of the following property characteristics: small reserves, difficult mining or reclamation conditions, poor quality coal, or isolated location.

Diligent Development: As used in this report, diligent development generally refers to the requirement in the Mineral Leasing Act that all lessees must make a reasonable effort to bring the lease into production. The Department of the Interior has issued regulations that define diligent development for Federal coal leases as actual production of commercial quantities of coal from the lease or the logical mining unit of which the lease is a part by June 1, 1986, or within 10 years after the lease is issued, whichever is later. Under certain conditions, the period for meeting diligence can be extended to June 1, 1991, for leases issued before passage of the Federal Coal Leasing Amendments Act of 1976.

Face: The solid unbroken surface of the coal seam exposed at the advancing end of the working place.

Federal Coal Lease: A lease issued under the Mineral Leasing Act of 1920 which grants the exclusive right to mine Federal coal subject to conditions set in the act, the lease, and applicable State and Federal laws and regulations.

Federal Coal Reserves: Coal reserves owned by the United States,

Federal Lands: Lands or interests in land, including subsurface mineral rights, that are owned by the United States, regardless of how ownership was acquired.

Federal Mine: A mine that includes a Federal coal lease in its mine area.

Grading: The leveling or elevation of land to a relatively smooth horizontal or sloping surface.

Lease Assignment: The sale or transfer of a lease or a partial interest in a lease from the current lessee to another.

Lease Block: A single lease or a group of two or more contiguous leases owned or controlled by the same lessee(s) or operator.

Lease Segregation: The division of an existing lease into two or more parcels at the request of the lessee. A new lease is then issued for each new parcel and the surviving lease is modified to reflect the reduced acreage, Lease segregation requires the approval of the Department of the Interior. Segregation is frequently used as a form of partial assignment.

Longwall Mining: An underground mining system that consists of a set of roof supports or "jacks" that are located parallel to the mining face, a conveyor system that runs along the base of the face, and a cutting mechanism that moves back and forth along the face cutting the coal out of the face and dumping it on the face conveyor for transport out of the mine. In a longwall system, parallel entries (typically from 300 to 600 ft apart) are driven into the coal seam using continuous miners. Then an interconnecting passage is made between the entries. The exposed seam is then mined in successive slices using the longwall system. As the slices or panels are removed, the roof support system is moved forward and the unsupported roof is allowed to collapse into the mined-out area left behind.

Maximum Economic Recovery (MER): Requirement that all portions of the coal deposits within a lease having an incremental cost of recovery (including reclamation, safety, and opportunity costs) less than or equal to the market value of the coal, must be mined.

Mine Development: As used in this report, the process of acquiring detailed geological, engineering, environmental, technical, and economic data for mine planning, construction, and initial commercial operation,

Mine Plan: As used in this report a mine plan refers to: 1) an operating plan for a mine with Federal leases submitted to the U.S. Geological Survey (USGS) under the requirements of the Mineral Leasing Act of 1920; or 2) a mining and reclamation plan for a mine with Federal leases submitted to the U.S. Office of Surface Mining (OSM) under the Surface Mining Control and Reclamation Act of 1977. A mine plan is a detailed description of the operator's proposed method, rate and sequence of mining, environmental protection measures, and reclamation strategies. The mine plan must be approved by USGS and OSM and appropriate State agencies before mining can begin.

Mine Size: As used in this report: A small mine produces 100,000 tons of coal per year or less; a medium-sized mine produces between

- 100,000 to 500,000 tons per year;** a large mine produces over 500,000 tons per year.
- New Source Performance Standards:** Standards set for new facilities to ensure that ambient standards are met and to limit the amount of a given pollutant a stationary source may emit over a given time.
- Non-Federal Coal Reserves:** Include private, State, local government, and Indian coal reserves.
- Open-Pit Mining:** A system of surface mining characterized by a series of benches, the number of which increases as the mine is deepened. These benches are each 40 to 50 ft in height and allow excavation to hundreds or thousands of feet.
- Overburden:** Earth, rock, or other consolidated or unconsolidated material that overlies a commercially valuable mineral deposit, such as a coal seam, especially those deposit which are mined from the surface through open cuts.
- Preference Right Lease:** Noncompetitive coal lease issued to the holder of a prospecting permit who discovers coal in commercial quantities on the land under permit.
- Public Lands:** Lands and interests in land owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management without regard as to how the United States acquired ownership, except lands located on the Outer Continental Shelf and lands held for the benefit of Indians, Aleuts, and Eskimos. Public lands are generally divided into public domain lands, which have never left Federal ownership, and acquired lands, which are not in the public domain and which have been obtained by the United States through purchase, condemnation, gift, or exchange.
- Reclamation:** Restoring mined lands to productive use; including replacement of topsoil, restoration of surface topography, and revegetation.
- Recoverable Reserves:** The amount of coal that can be economically extracted from a coal deposit of known location, quantity, and quality using currently available technologies. (See ch. 4 of this report for additional discussion of coal resource classifications.)
- Recovery Rate:** The percent of minable coal actually recovered. Typically 90 percent for a Western surface mine and 40 to 50 percent for an underground mine.
- Room-and-Pillar Mining:** An underground mining method in which coal is removed in a systematic pattern leaving behind mined-out 'rooms' and unmined coal 'pillars' to support the overlying rock. The actual extraction of coal in the room-and-pillar mine is accomplished with either conventional mining or continuous miners.
- Royalty:** A payment, either on straight fee per ton or as a percentage of the value of coal produced, to the owner of the resource for permitting another to mine and sell coal.
- Severance Tax:** A special levy, assessed at flat or graduated rates, on the extraction of natural resources.
- Spoil:** The overburden or material removed in gaining access to the commercially recoverable coal deposit, also called waste.
- Spoil Pile (or Bank):** An area where spoil or overburden material is deposited before backfilling; that part of the mine where the coal and other materials that are not marketable are left.
- Surface Subsidence:** The settling or sinking of the surface as a consequence of collapse of underlying strata because of underground mining.
- Terrace Pit Mining:** This method of surface mining combines the area-strip and open-pit mining techniques and is designed for the thick coal beds of northwestern Wyoming and southeastern Montana. The terrace pit mine has a system of benches like the open pit mine. However, there are more benches (six or seven) than with open pit mining. Also, the terrace pit mine, unlike the open pit mine, does not remain in the same location but rather moves across the property in a manner similar to a strip mine. Overburden is removed from one side of the pit, hauled around the pit ends, and dumped on the other side where coal has already been mined.
- Undeveloped Lease:** A lease for which no mine plan has been submitted.