

Glossary

ACRONYMS

MSHA	— Mine Safety and Health Administration
NAAQS	— National Ambient Air Quality Standards
NBS	— National Bureau of Standards
NEF #1	— National Environmental Forecast No. 1
NEPA	— National Environmental Policy Act
NHPA	— National Historic Preservation Act
NIH	— National Institutes of Health
NIOSH	— National Institute for Occupational Safety and Health
NIRA	— National Industrial Recovery Act
NO	— nitric oxide
NO ₂	— nitrogen dioxide
NO _x	— nitrogen oxide
NPDES	— National Pollutant Discharge Elimination System
NRDC	— Natural Resources Defense Council
NSPS	— New Source Performance Standards
OSHA	— Occupational Safety and Health Administration
OSM	— Office of Surface Mining
PAN	— peroxyacyl nitrate
PBN	— peroxybenzoyl nitrate
PIFUA	— Powerplant and Industrial Fuel Use Act
POM	— polycyclic organic matter
PRLA	— preference right lease application
PSD	— prevention of significant deterioration
RCRA	— Resource Conservation and Recovery Act
SCS	— Soil Conservation Service
SIP	— State implementation plan
SMCRA	— Surface Mining Control and Reclamation Act
SO ₂	— sulfur dioxide
SO ₃	— sulfur trioxide
SO _x	— sulfur oxide
SRC	— solvent-refined coal
TDS	— total dissolved solid
TSP	— total suspended particulates
TVA	— Tennessee Valley Authority
UARG	— Utility Air Regulation Group
UMWA	— United Mine Workers of America
WHO	— World Health Organization
WRC	— Water Resources Council

DEFINITIONS

Acre-foot: A measure of water 1 foot deep by an acre in area, or **43,560** ftj.

Ambient Air Quality Standards: According to the Clean Air Act of 1970, the air quality level which must be met to protect the public health (primary) and welfare (secondary). Secondary standards are more stringent than Primary Ambient Air Quality Standards.

Anthracite Coal: A hard, high rank coal with high fixed carbon.

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

Ash [fly ash]: Light-weight solid particles that are carried into the atmosphere by stack gases.

Base Load: The minimum load of a utility, electric or gas, over a given period of time.

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.

Bituminous Coal: The coal ranked below anthracite. It generally has a high heat content and is soft enough to be readily ground for easy combustion. It accounts for the bulk of all coal mined in this country.

Black Lung Disease: A group of pulmonary diseases that are common among coal miners.

BTU: British thermal unit, a measure of the energy required to raise one pound of water one degree Fahrenheit.

Coal Gasification: The process that produces synthetic gas from coal.

Coal Liquefaction: Conversion of coal to a liquid for use as synthetic petroleum.

Commercial Sector: A subsector of **service industries that includes wholesale and retail trade, schools and other** government nonmanufacturing facilities, hospitals and nursing homes, and hotels. As defined, this sector does not include trans-

portation and household services.

Criteria Pollutants: Six pollutants identified prior to passage of the Clean Air Act Amendments which now have established Ambient Air Quality Standards, i.e., sulfur dioxide, particulate matter, carbon monoxide, photochemical oxidants, non-methane hydrocarbons, and nitrogen oxides.

Effluent: Any water flowing out of an enclosure or source to a surface water or groundwater flow network.

Elasticity: The fractional change in a variable that is caused by a unit change in a second variable. Income elasticities are important in energy estimates, since these estimate the changes in quantities of energy demanded as incomes change.

Electrostatic Recipitator (ESP): A device for cleaning stack gas of particulate. The device first charges particles in the gas stream and then collects them on an oppositely charged surface.

Enhanced Oil Recovery (EOR): A variety of techniques (other than conventional pumping) for extracting additional quantities of oil from a well.

Fertility Rate: Average number of lifetime births per woman.

Flue-Gas Desulfurization: The use of a stack scrubber to reduce emissions of Sulfur oxides. See stack scrubber.

Fluidized Bed: A fluidized bed results when gas is blown upward through finely crushed particles. The gas separates the particles so that the mixture behaves like a turbulent liquid. Being developed for coal burning for greater efficiency and environmental control.

Greenhouse Effect: The potential rise in global atmospheric temperatures due to an increasing concentration of CO₂ in the atmosphere. CO₂ absorbs some of the heat radiation given off by the Earth, some of which is then reradiated back to the Earth.

Cross Energy Demand: The total amount of energy consumed by direct burning and

- indirect burning by utilities to generate electricity. Net energy demand includes direct burning of fuels and the energy content of consumed electricity. The difference between gross and net energy demand is a measure of the energy losses by utility conversion to electricity. The difference between gross and net energy demand is a measure of the energy losses by utility converts to electricity. About two-thirds of the energy input at the utility is lost in generation and transmission.
- Gross National Product (GNP):** The value of all goods and services produced in a given year. GNP is a "value added" concept. It is stated in either current or constant (real) dollars.
- Groundwater:** Subsurface water occupying the saturation zone from which wells and springs are fed; in a strict sense, this term applies only to water below the water table.
- Heat Pump:** A device that moves heat from one environment to another. In the winter it moves heat from the outside of a building to the inside, and in the summer it moves heat from the inside to the outside.
- Hydroelectric:** Electricity generated by water power.
- Industry:** Industry is an aggregate of three sectors — manufacturing, mining, and construction.
- In Situ Processing:** In-place processing of fuel by combustion without mining applies to oil shale and coal.
- joule:** A unit of energy which is equivalent to 1 watt for 1 second. 1 Btu = 1,055 Joules.
- Labor force:** The number of persons 16 years of age or older who are either employed or actively looking for work.
- Lignite:** The lowest rank coal from a heat content and fixed carbon standpoint.
- Metallurgical Coal:** Coal used in the steel making process. Its special properties and difficulty of extraction make it more expensive than steam coal.
- Methane:** CH₄, carburated hydrogen or marsh gas formed by the decomposition of organic matter. It is the most common gas found in coal mines.
- NEP:** National Energy Plan, the plan presented to Congress by President Carter in April 1977.
- 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.
- Oil Shale:** A finely grained sedimentary rock that contains an organic material, kerogen, which can be extracted and converted to the equivalent of petroleum.
- Participation Rate:** The percentage of persons 16 years of age or older who are either employed or actively looking for work. In 1976, the participation rate was 62.1 percent.
- Particulate Matter:** Solid airborne particles, such as ash.
- Peak Power:** The maximum amount of electrical energy consumed in any consecutive number of minutes, say 15 or 30 minutes, during a month.
- Petrochemical Feedstocks:** Petroleum used as an industrial raw material to manufacture goods, such as chemicals, rather than as a source of energy.
- Prevention of Significant Deterioration (PSD):** Pollution standards that have been set to protect air quality in regions that are already cleaner than the Ambient Air Quality Standards. Areas are divided into three categories determining the degree to which deterioration in the area will be allowed.
- Prime Farmlands:** Land defined by the Agriculture Department's Soil Conservation Service based on soil quality, growing season, and moisture supply needed to produce sustained high crop yields using modern farm methods.
- Primitive Areas:** Scenic and wild areas in the national forests that were set aside and preserved from timber cutting, mineral operations, etc., from 1930-39 by act of Congress; these areas can be added to the National Wilderness Preservation System established in 1964.
- Process Steam and Heat:** Steam and heat produced for industrial process uses, such

as the activation of drive mechanisms and product processing.

Productivity: The value of goods or services produced by a worker in a given period of time, such as 1 hour. For the United States in 1975, this averaged \$7.39. Increases in output over time are used to measure gains in productivity. A variety of time-periods are used, including output per worker per year. Also, productivity statements often refer to gains in private sector output per worker rather than output in the total economy.

Quad: One quadrillion (10^{15}) British thermal units (Btu).

Reclamation: Restoring mined land to productive use; includes replacement of topsoil, restoration of surface topography, waste disposal, and fertilization and revegetation.

Reserves: Resources of known location, quantity, and quality which are economically recoverable using currently available technologies.

Residential/ Sector: Includes all primary living units—houses, apartments, and mobile homes. Households are classified as follows: a) family households, which incorporate persons who are either married or blood related; b) primary individual households, which are made up either of single persons or incorporate two or more persons who are neither married or blood-related.

Resources: Mineral or ore estimates that include reserves, identified deposits that cannot presently be extracted due to economical or technological reasons, and other deposits that have not been discovered but whose existence is inferred.

Retrofit: A modification of an existing structure, such as a house or its equipment to reduce energy requirements for heating or cooling. There are basic types of retrofit: equipment, such as a heat pump replacing less efficient equipment; and insulation, storm doors, caulking, etc., designed to lower energy requirements.

Seam: A bed of coal or other valuable mineral of any thickness.

Slurry Pipeline: A pipeline that conveys a

mixture of liquid and solid. The primary application proposed is to move coal long distances (over 300 miles) in a water **mixture**.

Stack Scrubber: An air pollution control device that usually uses a liquid spray to remove pollutants, such as sulfur dioxide or particulate, from a gas stream by absorption or chemical reaction. Scrubbers are also used to reduce the temperature of the emissions.

Steam Coal: **Coal** suitable for combustion in boilers. It is generally soft enough for easy grinding and less expensive than metallurgical coal or anthracite.

Strip Mining: A surface mining method that **removes the overburden that covers the coal seam** in a series of parallel strips.

Subbituminous Coal: A low rank coal with low fixed carbon and high percentages of volatile matter and moisture.

Subsidence: The sinking, descending, or lowering of the land surface; the surface depression over an underground mine that has been created by subsurface caving.

Sulfates: A class of secondary pollutants that includes acid-sulfates and neutral metallic sulfates.

Sulfur: An element that appears in many fossil fuels. In combustion of the fuel the sulfur combines with oxygen to form sulfur dioxide.

Sulfur Dioxide: one of several forms of sulfur in the air; an air pollutant generated principally from combustion of fuels that contain sulfur.

Supply: The functional connection between the price of a good and the quantity of that good that some agent is willing to sell at that price. The supply function is generally positive, or (geometrically speaking) up-sloping, meaning that as price goes up, the quantity supplied also goes up.

Swing Fuel: A fuel that plays a key role during the transition from exhaustible to inexhaustible fuels. Coal is viewed by many as the swing fuel during the transition.

Synthetic Fuel: A fuel produced by biologically, chemically, or thermally transforming other fuels or materials.

Transportation Sector; Includes five sub-sectors: 1) automobiles; 2) service trucks; 3) truck/bus/rail freight; 4) air transport; and 5) ship/barge/pipel inc.

Unit Train: "A system "for delivering coal in which a string of cars, with distinctive markings and loaded to full visible capacity, is operated without service frills or stops along the way for cars to be cut in and out.

Western Coal: Can refer to all coal reserves west of the Mississippi. By Bureau of Mines definition, includes only those coal-fields west of straight line dissecting Minnesota and running to the Western tip of Texas. Wyoming and Montana (sub-bituminous) and North Dakota (1 gnite) have the largest reserves.