

DEFINITION OF TERMS AND A CLASSIFICATION SYSTEM OF COAL RESOURCE

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Abstract

Uniform, precise and standard terms for common understanding and a classification system to coordinate coal resource estimate is presented in this communication.

Introduction

Coal resource assessment is continuously made by several organizations and various terms are being used without proper circumscription and classification system. To avert confusion in comparing and coordinating the processed data, a standardized definitive circumscription of certain terms for common understanding and a classification system has become a necessity.

The term "coal resource" is designated to the estimated quantity of coal in the earth in such form that economic extraction is potentially feasible. The "coal reserve" has been defined to that part of resource for which rank, quality and quantity have been determined as minable at profit.

Definitions of Coal Resource Categories

The following categories of coal resource are defined by criteria of resource identification.

Resources—Concentrations of coal in such forms that economic extraction is feasible.

Identified Resources—Specific bodies of coal whose location, rank, quality and quantity are known from geological evidence.

Undiscovered Resources—Unspecified bodies of coal, surmised to exist on the basis of broad geologic knowledge.

Reserve—Identified coal resource portion that may be economically mined at the time of determination.

Recovery Factor—The percentage of total quantity estimated to be recoverable from a given area.

Identified Subeconomic Resources—The part of coal resources that occur in Demonstrated and Inferred Resources and is unminable economically at present.

Hypothetical Resources—Undiscovered Coal Resources that may be expected to exist in known mining areas under known geologic conditions.

Speculative Resources—Undiscovered coal beds that may occur either in known types of deposits in favourable geologic setting where no discoveries have been made or in deposits that remain to be recognized.

Some definitions applicable to both Reserve and Identified Sub-economic Resource components are :

Measured—Coal for which estimates of the age, rank, quality and quantity have been computed (from sample analysis and measurements from closely spaced and geologically well known sites).

Indicated—Coal for which estimates of rank, quality and quantity have been computed partly from sample analysis and measurements and partly from reasonable geologic projections.

Demonstrated—A collective term for the sum of coal in both Measured and Indicated Resources and Reserves.

Inferred—Coal in unexplored extensions of Identified Resources for which estimates of quality and size of the deposit are based on geologic evidence and projection.

Rank—The classification of coals relative to other coals according to their degree of metamorphism or progressive alteration in the natural series from lignite to anthracite.

Quality or Grade—Individual evaluation such as petrologic properties (type and rank), moisture, ash, fixed carbon, heat value, sulphur, phosphorus and coking properties. The individual quality elements may be aggregated in various ways to classify coal for specific purposes (metallurgical, gas, petrochemical, blending, usages).

Classification System

There are several systems of coal classifications mainly related to rank and composition (I. C. C. P., 1971; Francis, 1954; Moore, 1940; Navale & Misra, 1983). But terms related to coal bed categories with reasonable precision and common understanding and for comparison of data, a classification is also necessary.

The proposed classification (Text-Fig. 1) incorporates all the defined terms which may be adopted for coal resource classification by coding. For example *Jh XIII P (B)

COAL RESOURCES

	IDENTIFIED RESOURCE / RESERVE			UNDISCOVERED RESOURCE	
	DEMONSTRATED		INFERRED	HYPOTHETICAL (in known areas)	SPECULATIVE (in undiscovered areas)
	MEASURED	INDICATED			
ECONOMIC	49820				
SUBECONOMIC					

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Text-fig. 1

49820 indicates Jharia Coalfield, 13th seam, Palaeozoic age (Barakar Formation) and the tonnage in Measured category of Identified Resources. The same procedure may be adopted for coals of all ages (P=Palaeozoic, M=Mesozoic & C=Cenozoic) and may be put in whichever category they fall in the proposed system of classification. Coal grade (rank and quality) may be indicated after the tonnage in the code.

Criteria for Resource/Reserve/Identification

Estimates of the different classes of coal resources and reserves are arbitrarily based on certain criteria (i) thickness, rank and quality of coal, and (ii) depth of coal bed because they control economic and technologic feasibility of recovery. These criteria apply only to those coal beds that are and will be economically extractable by underground, surface and *in situ* methods. Coal seams thinner than 35 cm (anthracite, bituminous), 75 cm (sub-bituminous and lignite) and all deeper coals are to be excluded as per convention at present.

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