Defining Coal Resources and Reserves

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Total Resource

**Identified**

**Demonstrated**
- Direct evidence for this coal was collected in the form of cores and outcrop observations

**Inferred**
- This coal is near demonstrated coal deposits.

**Measured**
- 1/4 mile

**Indicated**
- 3/4 mile

**Undiscovered**

**Hypothetical**
- This coal is known based on regional geology, but has not been systematically explored.

**Speculative**
- This coal is deep in the earth, under the ocean, or in unexplored coal basins.

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**Reserve Base**
- (about half Recoverable)

**Currently economically mineable Resource**

**Resource** that is not economically mineable at this time

**Is it economic to mine now?**
- Yes
- No

**Is it deeper than 6000 feet?**
- No
Resource vs. Reserve

- **Resource** is how much coal is actually in the ground.

- **Reserves** are the amount of measured resource coal that could be expected to be economically mineable under the current economic and technological conditions.
Resource Terminology

- "**Measured**" – the amount of coal based on closely spaced, direct measurements such as visual confirmation on the surface, boreholes, or actual mines.

- "**Indicated**" – the amount of coal based on a combination of direct measurements and reasonable geologic assumptions made with high confidence.
Resource Terminology cont.d

- **"Demonstrated"** – This is simply a combination of measured and indicated resource as described above.

- **"Inferred"** resource is based on the assumed continuity of coal beds, both downwards into the earth and across the landscape from points of direct measurement.

- **"Identified"** – is the combination of inferred and demonstrated resources as described above.
Resource Terminology cont.d

• "Hypothetical" – refers to resources that are present in known but incompletely explored or unmapped coal beds, also limited to 6000 feet of depth and in the US, more than 3 miles from a measurement point.

• "Speculative" – refers to coal outside all of the above categories and is rarely used in discussions of coal resources.

• "Total Resource" – includes all of the categories above. Sometimes also called "resource base".
Reserve Terminology

• "Reserve base" – is coal which is both “demonstrated” (meaning we know it exists – see above) and is deemed to be economically and technologically mineable at any given time.

• "Recoverable reserve" – refers to the amount of the reserve base that might reasonably be expected to be actually mined and used.
Additional Considerations

• Calculating how much of a given region's demonstrated coal resources should actually be considered "reserves" depends on a complex interaction between technology, economics, and environmental regulations.

• Germany downgraded the size of their "proven reserve" in 2004 from 23 billion tons to 0.183 billion tons, a reduction of over 99%.

• Poland redefined its reserve base in 2007 and removed over 6 billion tons from their reserve