

Coal Development Overview

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National Park Service
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Geologic Resources Division
www2.nature.nps.gov/grd



Department of Energy and USGS Coal Facts

According to the United States Department of Energy, America has more coal than any other fossil fuel resource. The United States also has more coal reserves than any other single country in the world. Large coal deposits can be found in 38 of the 50 states. Coal is classified by the amount of heat it generates when burned. The four types (or "ranks") of coal mined today are anthracite, bituminous, subbituminous, and lignite. The United States

Geological Survey (USGS) performs and publishes geologic assessments of coal resources by "region." In the western United States, the USGS has divided these coal-bearing regions into the Northern Rocky Mountains and Great Plains Region, Colorado Plateau Region, and the Central Rocky Mountains. Coal is used to generate more than half the electricity used in the United States.

Coal Development

USGS coal resource maps indicate active coal mining or other coal facilities in the western U.S. in North Dakota, Nebraska, Kansas, Oklahoma, Texas, New Mexico, Colorado, Wyoming, Montana, Utah, Arizona, California, and Washington. Currently, the largest coal producing area in the western United States is the Powder River Basin in Wyoming. Coal is mined by either underground or surface methods depending upon the depth of the coal seam and the structure of the overburden. The Department of Energy and the USGS

have accurately mapped all coal bearing regions of the country. National Park Service data show that 46 western parks are located in or within 10 miles of an identified coal basin. Of these 46, seven units have encountered external mining proposals within that same 10-mile radius. Whether any given coal seam is mined or not hinges on economics. Western coal is rapidly becoming the preferred coal across the Nation due to its low sulfur, high BTU content.

Impacts

Impacts associated with coal mining can vary depending upon whether the coal is mined by underground or surface methods. Impacts of underground mining may include water contamination, groundwater depletion, surface subsidence, and visual and air resource effects associated with surface facilities. Surface operations, including open pit or strip mining, have the greatest potential for impacts. These impacts may include effects to surface or groundwater quality and quantity, air, visual,

and wildlife resources, noise and night lighting impacts, and may disturb large tracts of land. Open pit or strip-mining operations may require equipment ranging from wheel or track mounted power shovels to very large draglines to move coal and overburden. In addition, like underground mining operations, surface operations may also include additional surface coal handling facilities including trucking or rail load-out sites, or coal slurry pipeline operations.

Mitigation

Efforts to mitigate adverse impacts related to coal mining must be made keeping in mind that coal can only be mined from where the coal seam is located. When considering underground mining, surface facilities, such as mine portals or stockpile, sorting, or loading areas can be located away from sensitive resources. The mine operator or permitting authority may require certain underground mining methods that will better support the overburden resulting in less or no surface subsidence if mine location results in subsidence being an issue. Acid mine drainage (AMD) is one possible outcome when groundwater is intercepted. Controlled placement of pyritic materials, i.e. above the water table, may reduce or eliminate AMD concerns. Alkaline addition by mixing with pyritic materials or concentrated placement can neutralize acid generation. For surface facilities or surface mines, proper vegetative or topographical shielding can reduce visual impacts. Properly designed night lighting will also reduce impacts to night skies. Noise impacts are controlled through the use of adequate mufflers on coal hauling trucks or other

machinery powered by internal combustion engines. Size, frequency, and timing of blasting operations can also be dictated through permitting documents.

Further, and more importantly for the National Park Service, Section 522(e)(3) of the Surface Mining Control and Reclamation Act of 1977 (SMCRA) states: "[a]fter the enactment of this Act and subject to valid existing rights no surface coal mining operations except those which exist on the date of enactment of this Act shall be permitted- (3) which will adversely affect any publicly owned park or places included in the National Register of Historic Sites unless approved jointly by the regulatory authority and the Federal, State, or local agency with jurisdiction over the park or the historic site." SMCRA contains several other provisions relating to surface coal mining and NPS units. Please refer to the Western Energy Summit notebook for relevant references to this important Act.