

Federally Owned Coal, Federal Lands, and Coal Quality in the Colorado Plateau Region

Federally owned coal plays a major role in the energy supply of the United States. About 1.1 billion tons of coal were produced in the United States in 1997 (U.S. Department of Energy, 1998). About 30 percent of that total, or about 330 million tons,¹ came from Federal lands. (See USGS Fact Sheet FS-012-98.) Almost all of the Federal coal production is from Wyoming, Montana, and three States in the Colorado Plateau region—Utah, Colorado, and New Mexico² (see table below).

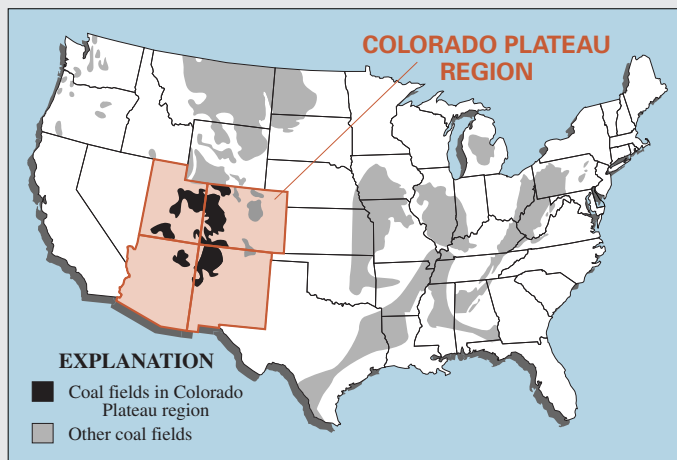
1997 Federal Coal Production from States in the Colorado Plateau Region (in thousands of short tons)	
Utah	23,887
Colorado	22,264
New Mexico	6,029
TOTAL for Region	52,180

(U.S. Department of Energy, 1998, p. 21)

The National Coal Resource Assessment, a multi-year effort by the U.S. Geological Survey, included studies of federally owned coal in seven areas (called “priority assessment units”) in the Colorado Plateau region (see CD-ROM by Kirschbaum and others, 2000). The goal of the assessment was to identify and characterize major coal resources that will supply the Nation’s energy needs during the first quarter of the 21st century, and, likely, well beyond.

This Fact Sheet presents resource estimates, never before calculated, for Federal coal in the seven priority assessment units in Utah, Colorado, and New Mexico. More than 360 billion tons of Federal coal exist in these areas. Knowing where the Federal coal is located, how much Federal coal exists, and its geologic setting helps land managers, planners, and mineral developers to make informed land-use decisions.

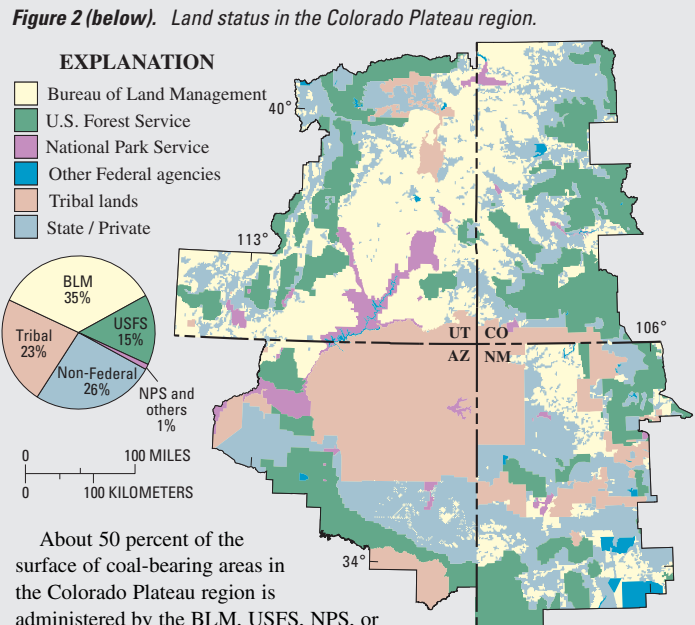
The Colorado Plateau region has extensive coal-bearing areas (fig. 1) and approximately 40 active coal mines that supply fuel for many of the region’s electrical power plants. Colorado Plateau coal is high in calorific value (Btu/lb), low in sulfur content, and contains few elements of environmental concern (see CD-ROM by Kirschbaum and others, 2000). From figures 1 and 2, we see that coal-bearing areas occur beneath lands administered by the Department of the Interior’s Bureau of Land Management (BLM) and National Park Service (NPS), or the Department of Agriculture’s U.S. Forest Service (USFS). Additionally, coal is present beneath Tribal, State, and private lands in the Colorado Plateau region.



¹ All tonnage values in this Fact Sheet are in short tons.
² Arizona coal production is not from federally owned coal resources and thus is not included in this discussion.



Figure 1 (above). Index map of Colorado Plateau region showing study area, coal-bearing areas, major towns, and roads.



About 50 percent of the surface of coal-bearing areas in the Colorado Plateau region is administered by the BLM, USFS, NPS, or other Federal agencies. About 23 percent of the area consists of Tribal lands; although those lands are held in trust by the U.S. Government, they are not considered Federal lands and their coal resources are not included in this study. About 26 percent of the region is administered by State agencies or is privately owned.

Federal coal resources

It is important for land managers, planners, and mineral developers to know where the Federal coal is located and how much Federal coal exists, in order to make informed land-use decisions.

For the seven priority assessment units studied in the Colorado Plateau as part of the National Coal Resource Assessment, we identified Federal and non-Federal surface ownership and coal ownership, and calculated Federal coal resources.

The Federal coal resources reported for each assessment unit are less than 6,000 ft deep, except for the Deserado and the Southern Wasatch Plateau units, where the coal resources are less than 2,000 ft deep and less than 4,500 ft deep, respectively.

3 Deserado assessment unit

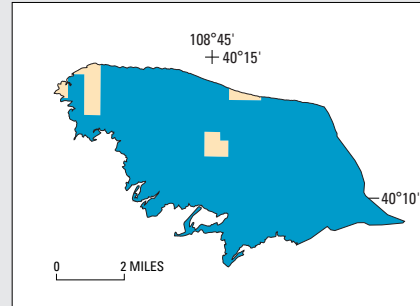
Percent land surface managed by the Federal Government: **94**

Percent of assessment unit underlain by federally owned coal: **99**

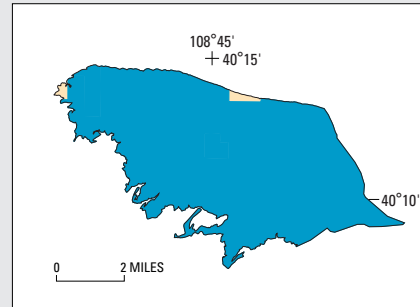
Federal coal tonnage: **360 million tons**

Percent of total coal tonnage that is federally owned: **98**

Coal Quality		
Median values on as-received basis		
Ash yield (percent)	Sulfur (percent)	Calorific value (Btu/lb)
10.0	0.5	10,830



Surface ownership



Coal ownership

2 Southern Wasatch Plateau assessment unit

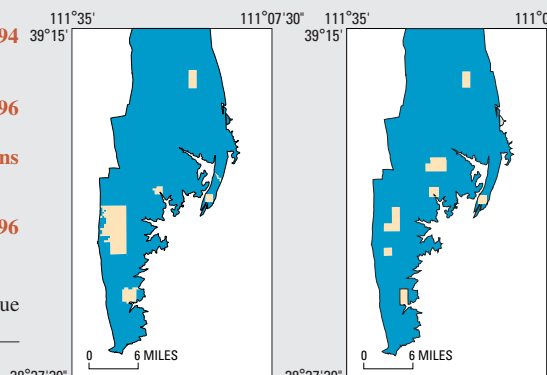
Percent land surface managed by the Federal Government: **94**

Percent of assessment unit underlain by federally owned coal: **96**

Federal coal tonnage: **6.5 billion tons**

Percent of total coal tonnage that is federally owned: **96**

Coal Quality		
Median values on as-received basis		
Ash yield (percent)	Sulfur (percent)	Calorific value (Btu/lb)
8.1	0.6	12,480



Surface ownership

Coal ownership

1 Kaiparowits Plateau assessment unit

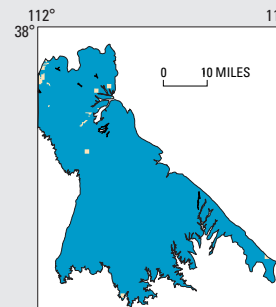
Percent land surface managed by the Federal Government: **99**

Percent of assessment unit underlain by federally owned coal: **99**

Federal coal tonnage: **61 billion tons**

Percent of total coal tonnage that is federally owned: **99**

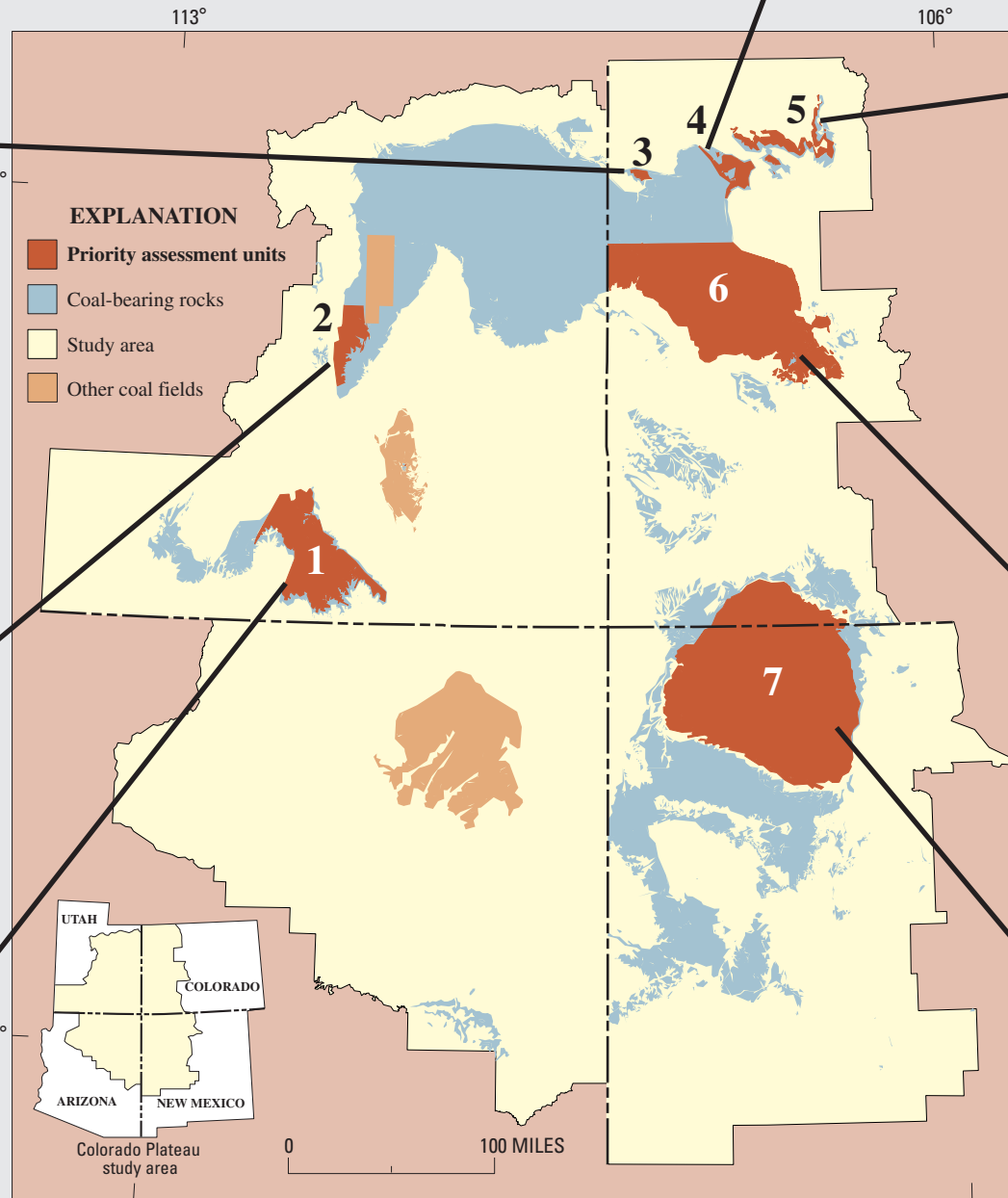
Coal Quality		
Median values on as-received basis		
Ash yield (percent)	Sulfur (percent)	Calorific value (Btu/lb)
9.2	0.7	9,360



Coal ownership

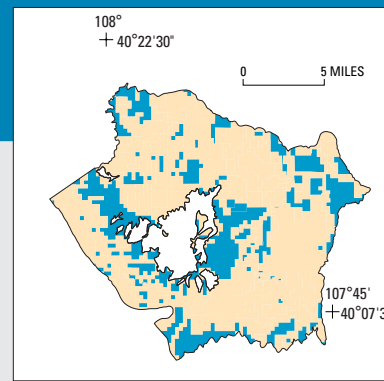
Ownership

- Federal
- Non-Federal (State, Tribal, and private)

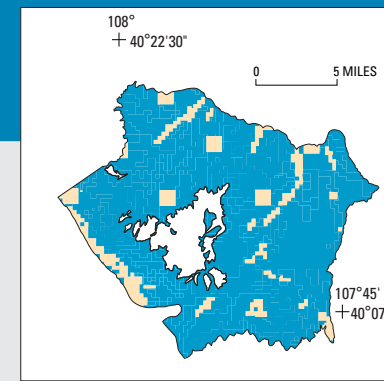


The seven priority assessment units of the Colorado Plateau region

Note:
 All tons are short tons (2,000-lb)
 To convert to metric tons, multiply by 0.907
 To convert feet to meters, multiply by 0.3048
 To convert miles to kilometers, multiply by 1.609



Surface ownership



Coal ownership

4 Danforth Hills assessment unit

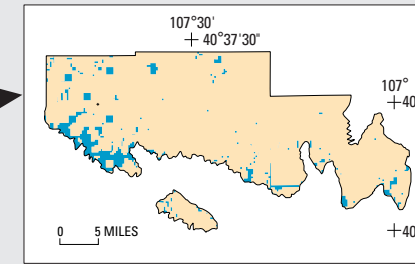
Percent land surface managed by the Federal Government: **25**

Federal coal tonnage: **18 billion tons**

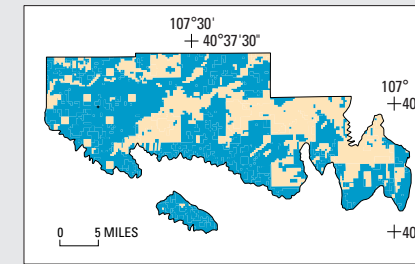
Percent of assessment unit underlain by federally owned coal: **89**

Percent of total coal tonnage that is federally owned: **86**

Coal Quality		
Median values on as-received basis		
Ash yield (percent)	Sulfur (percent)	Calorific value (Btu/lb)
6.5	0.4	10,010



Surface ownership



Coal ownership

5 Yampa assessment unit

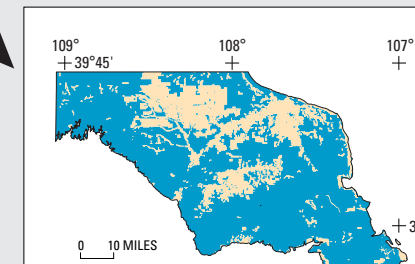
Percent land surface managed by the Federal Government: **7**

Percent of assessment unit underlain by federally owned coal: **65**

Federal coal tonnage: **52 billion tons**

Percent of total coal tonnage that is federally owned: **69**

Coal Quality		
Median values on as-received basis		
Ash yield (percent)	Sulfur (percent)	Calorific value (Btu/lb)
7.3	0.5	11,190



Coal ownership

6 Southern Piceance Basin assessment unit

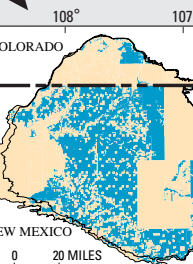
Percent land surface managed by the Federal Government: **64**

Percent of assessment unit underlain by federally owned coal: **74**

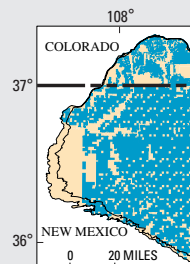
Federal coal tonnage: **94 billion tons**

Percent of total coal tonnage that is federally owned: **79**

Coal Quality		
Median values on as-received basis		
Ash yield (percent)	Sulfur (percent)	Calorific value (Btu/lb)
10.1	0.6	11,090



Surface ownership



Coal ownership

7 San Juan Basin assessment unit

Percent land surface managed by the Federal Government: **41**

Percent of assessment unit underlain by federally owned coal: **54**

Federal coal tonnage: **130 billion tons**

Percent of total coal tonnage that is federally owned: **58**

Coal Quality		
Median values on as-received basis		
Ash yield (percent)	Sulfur (percent)	Calorific value (Btu/lb)
20.1	0.6	8,940

The U.S. Geological Survey's digital database of surface and coal ownership (USGS Fact Sheet FS-012-98) and data on coal resource tonnages (see center pages) become the basis for answering complex spatial queries when combined with information on coal quality, coal thickness, structure, and other parameters generated from geologic investigations. Integrating this information assists policy makers and planners in decisions concerning multiple use of Federal lands and coal resource development.

The table below shows statistics concerning Federal land and federally owned coal in each of the seven priority assessment units of the Colorado

Plateau. In these seven assessment units, federally owned coal tonnage was calculated for the first time as part of this study. Land area that is federally administered ranges from 7 to 99 percent; area underlain by Federal coal ranges from 54 to 99 percent; and coal tonnage that is federally owned ranges from 58 to 99 percent.

For the resources reported in this table, all coal is less than 6,000 ft deep and is bituminous in rank; and coal beds included are 1.2 ft thick or greater. Areas currently under Federal or State leases and areas being mined were excluded from our resource calculations for reasons of confidentiality.

PRIORITY ASSESSMENT UNITS	FEDERAL LAND AREA (Percent of the surface that is administered by the Federal Government)	FEDERAL COAL AREA (Percent underlain by federally owned coal)	FEDERAL COAL PERCENTAGE (Tonnage that is federally owned)	FEDERAL COAL TONNAGE (In millions of short tons rounded to two significant figures)
Danforth Hills	25	89	86	18,000
Yampa	7	65	69	52,000
San Juan Basin	41	54	58	130,000
Southern Piceance Basin	64	74	79	94,000
Deserado	94	99	98	360
Southern Wasatch Plateau	94	96	96	6,500
Kaiparowits	99	99	99	61,000

About 71 percent (360 billion tons) of the total 510 billion tons of coal in the seven combined Colorado Plateau assessment units is federally owned (fig. 3). About 48 percent of the total 510 billion tons of coal in the assessment units occurs beneath federally managed land surface; the rest of the coal occurs beneath State, Tribal, or privately owned land.

The federally owned coal deposits of the Colorado Plateau region play an important role in supplying energy to our Nation. About 360 billion tons of Federal coal exist in the seven Colorado Plateau assessment units studied for the National Coal Resource Assessment. As United States coal resources continue to be examined for potential development, there is sustained interest in Federal coal in the Colorado Plateau region.

References Cited

Kirschbaum, M.A., Roberts, L.N.R., and Biewick, L.R.H., eds., 2000, Geologic Assessment of Coal in the Colorado Plateau—Arizona, Colorado, New Mexico, and Utah: U.S. Geological Survey Professional Paper 1625-B, CD-ROM, 1175 p.

U.S. Department of Energy, Energy Information Administration, 1998, Coal Industry Annual, 1997: DOE/EIA-0584(97).

U.S. Geological Survey Fact Sheet FS-012-98 (<http://geology.cr.usgs.gov/pub/fact-sheets/fs-0012-98>): Federal coal in the United States—A digital database of coal ownership status, 6 p.

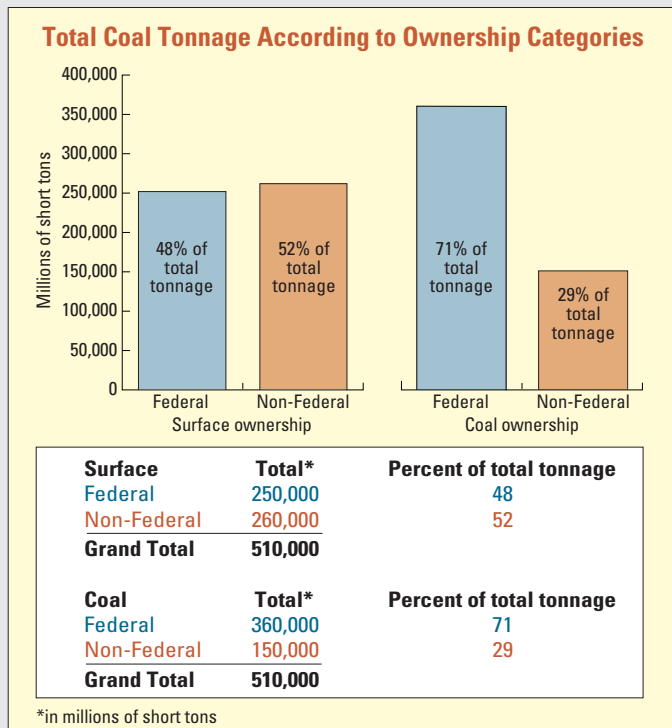


Figure 3. Total coal tonnages according to ownership categories, Colorado Plateau region.

For further information on Federal coal resources, contact:

Carol L. Molnia clmolnia@usgs.gov (303) 236-7769
Laura N.R. Roberts lroberts@usgs.gov (303) 236-7777
Laura R.H. Biewick lbiewick@usgs.gov (303) 236-7773

For further information on coal quality, contact:

Ronald H. Affolter affolter@usgs.gov (303) 236-7752

For information on the geology of the priority assessment units, contact:

Michael E. Brownfield mbrownfield@usgs.gov (303) 236-7767
(Deserado and Danforth Hills)
Russell F. Dubiel rdubiel@usgs.gov (303) 236-1540
(Southern Wasatch Plateau)
James E. Fassett jfassett@usgs.gov (303) 236-0609
(San Juan Basin)
Robert D. Hettinger rhettinger@usgs.gov (303) 236-7770
(Kaiparowits Plateau and Southern Piceance Basin)
Edward A. Johnson ejohnson@usgs.gov (303) 236-4857
(Yampa)

U.S. Geological Survey, P.O. Box 25046, Denver Federal Center, MS 939, Denver, CO 80225

This fact sheet can be viewed on the Web at:
<http://geology.cr.usgs.gov/pub/fact-sheets/fs-011-01>

For more information on the geology and coal resources of the Colorado Plateau, see the CD-ROM by Kirschbaum and others (2000) in References Cited above.