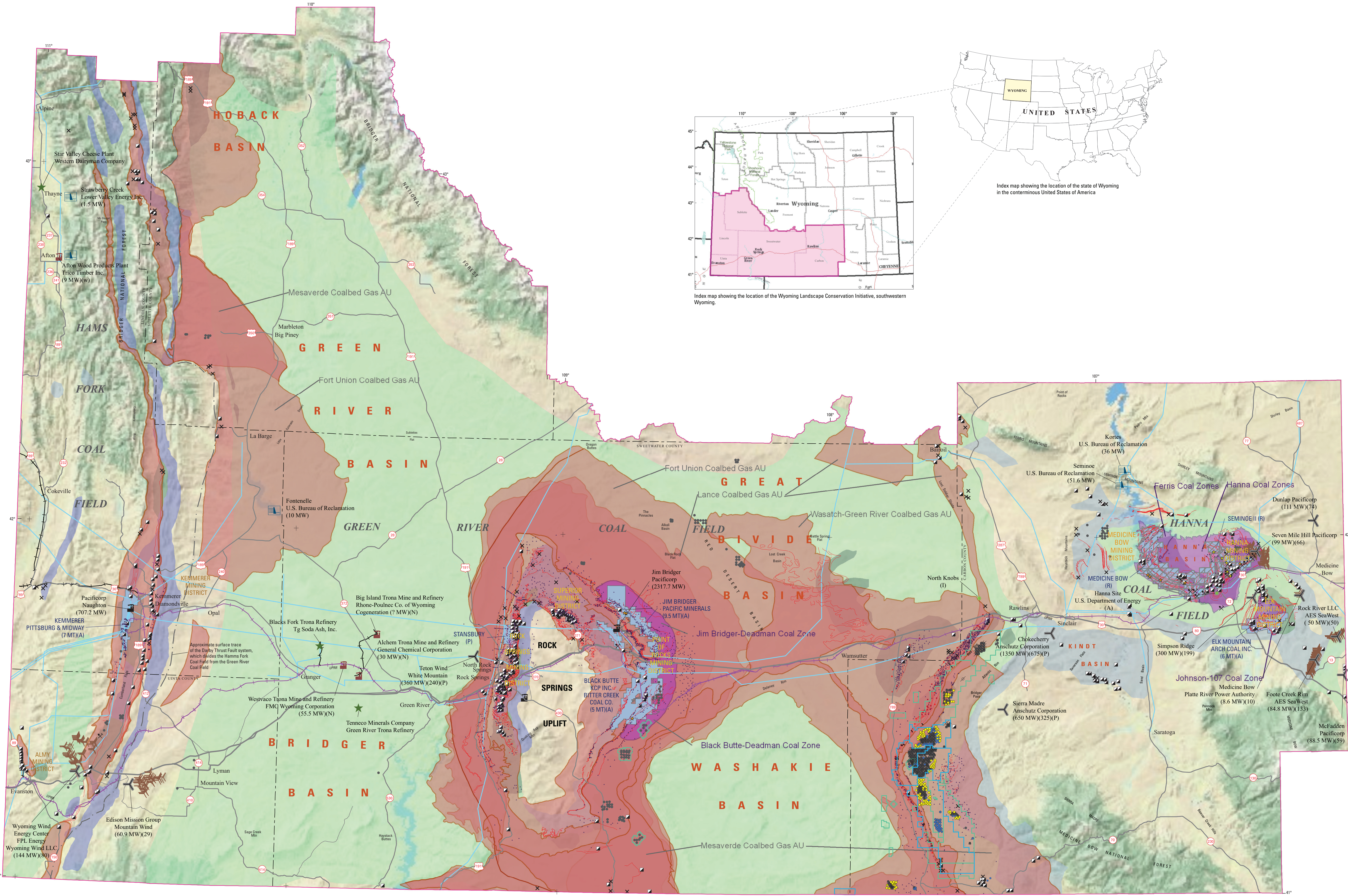




Wyoming Landscape Conservation Initiative boundary—Study area boundary

Coal bed outcrops—May include coal subcrop (where outcrop has burned or weathered). Includes coal beds four feet or greater in thickness that can be mapped at the scale of this map. Where coal beds are closely spaced, a line may represent more than one bed. Because of varying scales and different accuracies of maps used in compilation, outcrops may not necessarily agree with mapped formation boundaries (from Jones and others, 2009)

Generalized coal rank—Colors indicate rank within coal fields (Trumbull, 1960; modified from Tully, 1996). (Some coal-rank colors may not exactly match colors on the map due to the use of transparencies to create the map)

Medium and high volatile bituminous—The most abundant coal type, intermediate in rank between subbituminous coal and anthracite. High volatile bituminous coal is classified on the basis of its calorific value on a moist, ash-free basis (ranging from 24 to 33 megajoules per kilogram; 10,500 to 14,000 British thermal units per pound (Btu/lb) (Encyclopedia Britannica, 2010)

Medium and high volatile bituminous/areas of doubtful value for coal—These may be divided into three classes: (1) areas containing thin or irregular beds, which locally may be thick enough to mine; (2) areas in which coal is of poor quality; and (3) areas where information on the thickness and quality of coal beds is meager or lacking (Trumbull, 1960)

Subbituminous—Generally dark brown to black coal, intermediate in rank between lignite and bituminous coal. Subbituminous coal contains 42 to 52 percent carbon (on a dry, ash-free basis) and has calorific values ranging from about 19 to 26 megajoules per kilogram (about 8,200 to 11,200 Btu/lb). (Encyclopedia Britannica, 2010)

Subbituminous/areas of doubtful value for coal—See medium and high volatile bituminous/areas of doubtful value for coal, above

U.S. Geological Survey National Coal Resource Assessment areas—Boundaries represent coal beds and zones that were identified for the 1999 National Coal Resource Assessment in the Northern Rocky Mountains and Great Plains region (U.S. Geological Survey National Coal Assessment Team, 1999). Color variations due to the use of transparent polygons in the map construction.

U.S. Geological Survey National Coal Resource Assessment coal apparent rank—Point representation of coal quality sample indicating classification of coal according to the degree of metamorphism, progressive alteration, or coalification (maturation) in the natural series from lignite to anthracite, following the American Society for Testing and Materials, 1994, D38-92a, p. 168-171 (from U.S. Geological Survey Fort Union Coal Assessment Team, 1999)

Bituminous

Subbituminous

U.S. Geological Survey National Oil and Gas Assessment units—Boundaries represent the geologic limit of coalbed gas assessment units (AU) as defined for the 2002 assessment of undiscovered oil and gas resources in the southwestern Wyoming Province (U.S. Geological Survey Southwest Wyoming Province Assessment Team, 2005) and the assessment of undiscovered oil and gas resources of the Wyoming Thrust Belt Province, 2003 (Kirschbaum and others, 2004)

U.S. Geological Survey National Coal Resources Data System (NCRDS) Stratigraphic Data Locations—Point locations of stratigraphic data from drill holes, measured sections, cores, and surface and underground coal mines that are stored in the NCRDS stratigraphic database (USSTRAT), see http://energy.er.usgs.gov/coal_quality/coal_database.html

Coal mines

Surface coal mine—Shaded blue areas indicate permit areas for active mines; hatched area indicates mined out/reclaimed areas. Active, proposed, or inactive mines (as of February, 2010) include mine name, permit number, mine type (surface, underground, or both) and mine status. Symbol indicates approximate location of pits for abandoned mines and can represent more than one pit. Abandoned mines with limited areal extent are unlabeled (from Jones and others, 2009)

Underground coal mine—Approximate location of entrance, shaft, or underground mine workings. Active mines (as of December, 2008) include name, company, permitted or proposed productive capacity in millions of short tons (MT), and status (A=active). Symbol can represent more than one entry or mine. Abandoned mines are unlabeled (from Jones and others, 2009)

Prospect—Approximate location of shallow pit or underground entry; symbol can represent more than one prospect (from Jones and others, 2009)

In-situ coal gasification projects—Name of project and status (I=inactive or abandoned, A=active) as of December, 2008 (from Jones and others, 2009)

Electrical generating plants—Plant name, company name, and nameplate capacity in megawatts (MW) as of December, 2008 (A=abandoned, W=wood) (from Jones and others, 2009)

Coal-fired power plant

Cogenation power plant—Abbreviations for fuel used are: c, coal; d, diesel; n, natural gas; x, unknown

Hydroelectric power plant

Wind generating power project—Capacity in MW is total for all units. Number after capacity indicates approximate number of units; symbol may represent more than one unit (uppercase P indicates proposed)

Industrial facilities using coal—Plant name and company as of December, 2008 (from Jones and others, 2009)

Coal-fired industrial plant

Wind turbine locations—Locations of wind turbines within Wyoming as of August, 2009. The locations are derived from the Nation Agriculture Imagery Program (NAIP), August 2009, true color imagery and have a positional accuracy of approximately ±5 m (O'Donnell and Facher, 2010)

Atlantic Rim coalbed natural gas well status—Location and status of coalbed natural gas wells as of 2009 (Quillinan and others, 2009)

Shut-in well

Producing coalbed natural gas well

Permitted coalbed natural gas well

Injection well

Abandoned coalbed natural gas well

Dry hole

Waiting for permit

Atlantic Rim coalbed natural gas leasing units—Location of authorized and pending oil and gas units as of 2009 (from Quillinan and others, 2009)

Bureau of Land Management (BLM) coalbed natural gas units—Locations of authorized and pending coalbed gas units as of June, 2010

Coalbed natural gas wells from the Wyoming Oil and Gas Conservation Commission—June 2010

Rawlins-Little Snake River area geology and coal stratigraphy—Locations of coal correlation chart drill holes and lines of measured sections (from Hettinger and others, 2008)

Coal correlation chart drill holes

Lines of measured stratigraphic sections

Interstate route

Federal route

State highway

County boundary

Railroad—Colored to indicate major coal unit train route; closed loops are unit train loadout facilities. Ownership of trackage: UPRR, Union Pacific Railroad Company. (from Jones and others, 2009)

Electrical transmission line—Only transmission lines of 115 KV and greater are shown (from Jones and others, 2009)

EXPLANATION

Note: because the coal map of Wyoming (Jones and others, 2009), was published as GIS layers, some of the data, symbology, and many of the annotations included on this plate were taken directly from that source.

SCALE 1:500,000

0 10 20 30 40 MILES

0 10 20 30 40 KILOMETERS

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Projection: Lambert Conformal Conic

Central meridian: 107° West

Standard Parallel 1: 20° North

Standard Parallel 2: 40° North

Latitude of origin: 40° North

North American Datum of 1983 (NAD 83)

Edit and cartographic layout by L. Bieder

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Energy Map of Southwestern Wyoming, Part A—Coal and Wind

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