

Chapter 3

# **The GIS Project for the Geologic Assessment of Undiscovered Oil and Gas in the Powder River Basin, Wyoming and Montana**

By Christopher P. Anderson

Chapter 3 of

**Total Petroleum Systems and Geologic Assessment of Oil and Gas Resources in the Powder River Basin Province, Wyoming and Montana**

By U.S. Geological Survey Powder River Basin Assessment Team

U.S. Geological Survey Digital Data Series DDS-69-U



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U.S. Geological Survey, Reston, Virginia: 2010  
Revised: April 2010

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Suggested citation:

Anderson, Christopher P., 2010, The GIS project for the Geologic Assessment of undiscovered oil and gas in the Powder River Basin, Wyoming and Montana, *in* Total Petroleum Systems and Geologic Assessment of Oil and Gas Resources in the Powder River Basin Province, Wyoming and Montana: U.S. Geological Survey Series DDS-69-U, chap. 3, 1 p. Revised April 2010.

# The GIS Project for the Geologic Assessment of Undiscovered Oil and Gas in the Powder River Basin, Wyoming and Montana

By Christopher P. Anderson

A geographic information system (GIS) focusing on the Powder River Basin was developed as a visual-analysis tool for the U.S. Geological Survey's 2006 assessment of undiscovered, technically recoverable oil and natural gas resources in the Powder River Basin Province. The Central Energy Resources Team of the U.S. Geological Survey has also developed an Internet Map Service to deliver the GIS data to the public. This mapping tool utilizes information from a database about the oil and natural gas endowment of the United States—including physical locations of geologic and geographic data—and converts the data into visual layers. Portrayal and analysis of geologic features on an interactive map provide an excellent tool for understanding domestic oil and gas resources for strategic planning, formulating economic and energy policies, evaluating lands under the purview of the Federal Government, and developing sound environmental policies. Assessment results can be viewed and analyzed or downloaded from the Internet Web site.

Hydrocarbon assessment-unit boundaries include the assessment results as attributes. Specialized maps, which we in the Central Energy Resources Team refer to as “cell maps,” illustrate the degree of exploration and the type and distribution of production for each assessment unit. Other data that are also available in the interactive map include the following:

- Cities
- Roads
- Geologic provinces
- Total petroleum system
- States
- Counties
- Streams and water bodies
- Federal surface ownership

Click on the map below to access the Powder River Basin Province Internet Map Service.



The spatial data that formed the basis of the GIS for the Powder River Basin are provided online at the USGS National Oil and Gas Assessment Web site (NOGA Online: <http://energy.cr.usgs.gov/oilgas/noga/>) and are also contained on this CD-ROM in the Spatial folder. The Doc folder contains metadata documentation in HTML format that is also incorporated in each shapefile in XML format. Most of the base cartographic data layers used in the GIS project were obtained from the U.S. Department of the Interior National Atlas Web site, [www.nationalatlas.gov](http://www.nationalatlas.gov).

Publishing support provided by:  
Denver Publishing Service Center

For more information concerning this publication, contact:  
Team Chief Scientist, USGS Central Energy Resources  
Box 25046, Mail Stop 939  
Denver, CO 80225  
(303) 236-1647

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