

1.0 INTRODUCTION

The Powder River Basin (PRB) of Wyoming and Montana is a major energy development area with diverse environmental values. Energy development has been occurring in the PRB for well over a century. The first coal mine in the basin was developed near Glenrock, in Converse County, in 1883 (Foulke et al. 2002). While coal can be found in several areas of Wyoming, the extensive surface-accessible coal resource is what sets the PRB apart from other energy-producing areas of the state and country. The Wyoming portion of the PRB is the largest coal-producing region in the United States (U.S.); PRB coal is used to generate electricity both within and outside of the region. The PRB also has vast oil and natural gas resources, which have been and continue to be produced. Within the last decade, the region has experienced nationally significant development of natural gas from coal seams.

The geographic focus of the PRB Coal Review for cumulative effects on social and economic conditions is on Campbell County, reflecting the geographic location of the active coal mines. However, the coal resource and the associated mining industry is the economic dynamo for the entire region. Consequently, it is necessary to consider potential effects in nearby counties also affected by coal mining. Although coal mining in the PRB indirectly affects the entire state and areas far outside of Wyoming, this analysis focuses on those immediately adjacent counties in Wyoming that are affected by work force commuting to and from the coal mines. Included are Crook, Johnson, Sheridan, and Weston counties (**Figure 1-1**). Niobrara and Natrona counties also experience economic, social, or demographic effects due to coal mining in the PRB. However, it generally is accepted that the impacts are limited in scale, and are primarily secondary or tertiary level effects arising not strictly from mining per se, but from a related industry or indirect economic linkages.

The majority of the surface ownership in the PRB study area is private. Conversely, the majority of the mineral ownership in the study area is federal (see the Task 2 Report for the PRB Coal Review, Past and Present and Reasonably Foreseeable Future Activities [ENSR 2005b]). Federal mineral ownership may include all minerals in some locations and only specific minerals (e.g., coal or oil and gas) in other locations. As a result, split-estates (where the surface ownership is different than the mineral ownership) exist in a large portion of the PRB.

Federal coal leasing is a high profile activity as over 90 percent of the PRB's coal is federally owned. Between 1974 and 1982, the Bureau of Land Management (BLM) issued three and started a fourth separate regional coal environmental impact statement (EIS), all addressing federal coal leasing and related development, as well as other regional development. Following decertification of the region by the Powder River Regional Coal Team (PRRCT), the BLM has used the lease by application (LBA) process to meet the need for additional coal resources. Each LBA requires an EIS or environmental assessment (EA) as part of the leasing process.

Starting with the first LBAs, the BLM met the need for cumulative analysis in each EIS or EA with a discrete chapter addressing cumulative impacts. This approach served to highlight and focus cumulative impacts as distinct from site-specific impacts. Each cumulative impact analysis was based on the earlier regional EISs and added new information, as available. With each subsequent EIS, the cumulative analysis was updated and new information added. In the mid-1990s, the BLM conducted a study called the PRB Coal Development Status Check to evaluate how actual

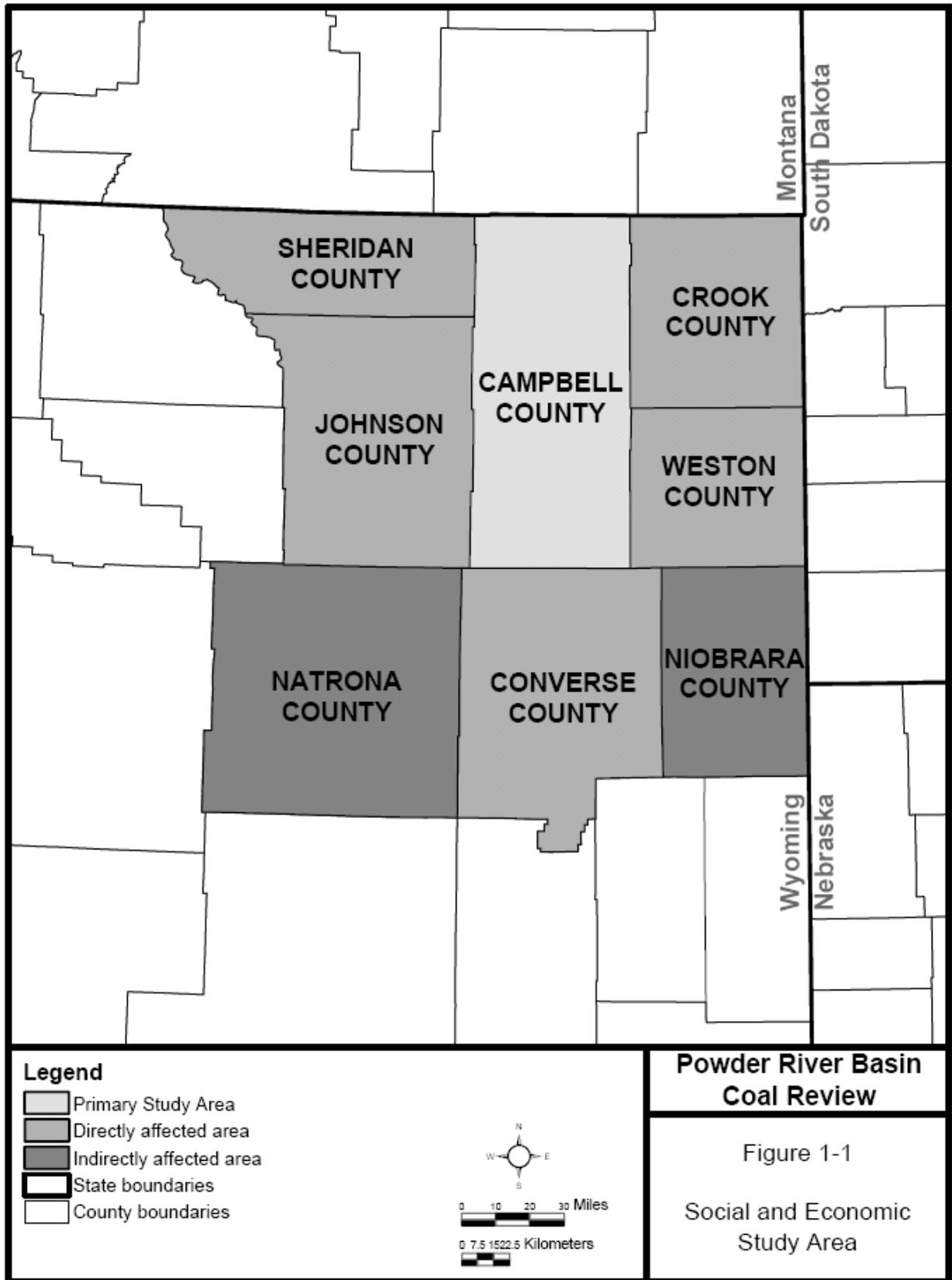


Figure 1-1. Social and Economic Study Area

development levels compared to the development levels predicted in the earlier regional EISs. The results of this study were presented to the PRRCT in 1996. Then, in the late 1990s, annual coal production and associated impacts drew closer to the maximum projections in the regional EISs. Furthermore, the large scale oil and gas development associated with coal bed natural gas (CBNG) development had not been foreseen in those EISs.

For the most recent LBAs, the BLM used the cumulative analysis from the Wyodak EIS (BLM 1999) and PRB Oil and Gas EIS (BLM 2003), particularly for air and water resources. Both EISs projected regional development including the CBNG activity, but did not project coal development over a long-term period.

In early 2003, BLM completed a PRB coal demand study through 2020 (Montgomery Watson Harza 2003). The study projected production to increase at a steady pace with current mines able to meet the demand as long as these mines have access to additional coal reserves; therefore, the need for leasing using LBAs will continue into the foreseeable future. As part of processing these LBAs, BLM will need to maintain a current cumulative impact analysis. An initial step in that direction is this PRB Coal Review, which includes the identification of current conditions (Task 1 reports), identification of reasonably foreseeable development (RFD) actions and future coal production scenarios (Task 2 report), and predicted future cumulative impacts (Task 3 reports) in the PRB.

The Task 2 component of the PRB Coal Review defines the past and present development actions in the study area that have contributed to the current environmental and socioeconomic conditions in the PRB study area. This report also defines the projected RFD scenarios in the Wyoming and Montana PRB for years 2010, 2015, and 2020. For the Wyoming PRB, the past and present development and RFD scenarios include coal mine development as well as coal-related activities (e.g., railroads and coal-fired power plants) and non-coal-related activities (e.g., other minerals, CBNG, and conventional oil and gas). Coal mine development and coal-related activities in the Montana PRB study area are included in this study to provide the basis for the analysis of cumulative air quality impacts and to facilitate the concurrent development of the Miles City Resource Management Plan. The past and present activities identified in the Task 2 report are based on the most recent data available at the end of 2003 and provide the basis for the resource-specific descriptions of current conditions presented in the PRB Coal Review Task 1 reports.

The RFD scenarios presented in the Task 2 report provide the basis for the analysis of potential cumulative impacts in the Task 3 component of the study. The accuracy of any projected cumulative impact analysis is dependent on the adequacy and accuracy of information regarding potential future development activities in the affected area. While it is impossible to identify all potential future activities over the next 15 years, it is possible and desirable to identify RFDs based on current industry announcements, agency plans, economic trends, and technological advances affecting major industry sectors. Information regarding potential new development is constantly changing; however, to facilitate development of the information in this study, the RFDs identified in the Task 2 report reflect information available through the end of 2004.

The past and present actions in the Task 2 report were identified based on information in existing National Environmental Policy Act (NEPA) documents on file with federal and state agencies, and the Coal Development Status Check (BLM 1996). The RFD scenarios in the Task 2 report were developed based on recent information that identifies proposed and anticipated development in the PRB, including NEPA documents; various other technical reports and studies; federal, state, and

1.0 Introduction

local (county) agency management plans; and permit applications. The specific development scenarios and development activities identified in these sources were assessed as to their current status prior to inclusion in the RFD scenarios for the PRB Coal Review. In addition, potential additional projects were identified through interviews with agency and industry representatives, review of published news articles and trade publications, and discussions with community leaders.

The identified RFD activities subsequently were evaluated as to their probability for occurrence. Due to the lack of detailed information for many developments beyond the next few years, the degree of uncertainty associated with the predicted developments and trends increases as the timeframe extends further into the future.

For each of the past and present and RFD projects and activities, project-specific impact-causing parameters (e.g., disturbance acreage, emission levels, employment levels, etc.) have been compiled from the sources identified above. Where specific information was unavailable, assumptions were developed and included based on typical industry-specific standards, permit criteria for similar existing industries, and professional judgment. This information is summarized in the Task 2 report.

In order to account for the variables associated with future coal production, two detailed coal production scenarios (reflecting upper and lower production estimates) were projected for this study to bracket the most likely foreseeable regional coal production level and to provide a basis for quantification of related impact-causing parameters. These future production levels were derived from the analysis of historic production levels and current PRB coal market forecasts, public and private information sources, and input from individual PRB coal operators, and they are summarized in the Task 2 report¹.

1.1 Objectives

This PRB Coal Review is a regional technical study to assess cumulative impacts associated with past, present, and reasonably foreseeable development in the PRB. The PRB Coal Review:

- Describes past and present (through 2003) development activities in the PRB that have affected the environmental conditions in the study area;
- Describes the current (through 2002-2003) environmental conditions in the study area and compares these conditions to the conditions projected in the BLM's Coal Development Status Check (BLM 1996), as applicable;
- Estimates reasonably foreseeable development in the study area through the year 2020, based on available information; and
- Estimates the environmental impacts associated with reasonably foreseeable development through the year 2020.

¹ Some of the information provided by coal operators is considered proprietary. Consequently, mine-specific information is not presented in the PRB Coal Review studies; the information is combined into mine subregions to protect the confidentiality of data.

The PRB Coal Review will provide data, models, and projections to facilitate cumulative analyses for future agency land use planning efforts and for future project-specific impact assessments for project development in compliance with NEPA. It should be noted that the PRB Coal Review itself is not a NEPA document. It is not a policy study, nor is it an analysis of regulatory actions or the impacts of project-specific development.

This report summarizes Task 3C of the PRB Coal Review, a description of predicted future cumulative social and economic impacts associated with RFD activities in the PRB cumulative effects study area. This report describes the predicted cumulative social and economic impacts under two coal production scenarios (lower and upper) for the years 2010, 2015, and 2020.

The PRB Coal Review Task 3 descriptions of predicted cumulative impacts for air quality, water resources, and environmental conditions are presented in separate stand-alone reports.

1.2 Agency Outreach, Coordination, and Review

The BLM directed the preparation of this PRB Coal Review. In order to ensure the credibility of the data, projections, interpretations, and conclusions of the study and to ensure the study's usefulness for other agencies' needs, the BLM initiated contact with other federal and state agencies early in the study. This contact included meetings, periodic briefings, and written communications.

The BLM conducted an agency outreach program to solicit input from other governmental agencies relative to their:

- Interest in and potential level of involvement in the study;
- Available data for use in the study;
- Input to the technical approach for resource evaluations; and
- Review of project deliverables.

As part of this agency outreach and technical oversight, the BLM organized technical advisory groups. These groups were composed of agency representatives with technical expertise in the applicable resources.

Relative to the social and economic component of the PRB Coal Review, other federal and state agencies were informed of the study by the BLM at the outset of the project. Several agencies subsequently forwarded references to documents that might serve as information resources for the baseline portion of the study (Task 1). For the impact analysis portion of the study (Task 3), a Socioeconomic Workgroup composed of individuals representing community, industry, government, and academic interests was assembled to serve in a technical advisory and review capacity.

1.3 Key Issues for this Report

Energy development in the PRB has been one of the primary factors affecting social and economic conditions within the PRB, although the effects have varied by county, community, and time frame. PRB energy resources are a major component of the Wyoming economy and have been a major contributor of state and local tax revenues for the last quarter century.

1.0 Introduction

Energy development has produced periodic surges in population in some PRB communities, occasionally followed by periods of population loss. However, the nationwide growth in energy consumption, coupled with the PRB's vast and relatively diverse energy resource base (coal, oil, natural gas, uranium), has resulted in a 50-year growth trend in Campbell County and other parts of the basin, without the busts and resultant ghost towns that have followed many other western U.S. resource booms.

This extended period of energy development has yielded substantial economic and community development benefits, including economic growth, employment opportunity, tax revenue growth, and infrastructure development for most local governments and for the State of Wyoming as a whole. At the same time, periods of rapid growth have stressed communities and their social structures, housing resources, and public infrastructure and service systems².

The recent wave of activity associated with CBNG development in the region, and the prospect of expanded coal production and expanded electric power generation in the future, raises several socioeconomic issues for the cumulative impact analysis as identified below:

- What is the status of the local labor market, and how is it likely to respond to changing conditions?
- What is the expected role of migration in terms of future growth?
- To what extent will energy development in Campbell County affect socioeconomic conditions in neighboring counties?
- Is community infrastructure and service capacity adequate for foreseeable needs?
- What are the implications of future resource development on key fiscal linkages?
- What is the current social climate regarding future energy development?

² Economic and demographic baseline data are available for states, counties, communities, county subdivisions and Indian Reservations throughout the west via the Economic Profile System (EPS). Developed by the Sonoran Institute, a non-profit organization, under an agreement with the BLM, the EPS produces standard economic and demographic profiles using data from various government agencies. EPS is not an impact model: it cannot quantify the economic effects of proposed policies and plans. Additional information and EPS software and database downloads are available on the internet at: http://www.sonoran.org/programs.si_se_program_tools.html.