SUBLETTE COUNTY SOCIOECONOMIC IMPACT STUDY
PHASE II - DRAFT

SUBLETTE COUNTY, WYOMING

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Prepared for
Sublette County Commissioners

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LIST OF ACRONYMS

Abbreviation	Title
AJEs	Annual Job Equivalents
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
BLM	Bureau of Land Management
CBM	Coal Bed Methane
CBNG	Coal Bed Natural Gas
CREG	Consensus Revenue Estimating Group
DCI	Division of Criminal Investigation
DEIS	Draft Environmental Impact Statement
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
EPS	Economic Profile System
ERG	Ecosystem Research Group
FMR	Federal Mineral Royalties
FSEIS	Final Supplemental Environmental Impact Statement
FTE	Full Time Equivalents
FY	Fiscal Year
GDP	Gross Domestic Product
HQ	Headquarters
IMPLAN®	IMpact Analysis for PLANning
ISA	Industrial Siting Act
JIDP	Jonah Infill Drilling Project
LOP	Life of Plan
LUPH	Land Use Planning Handbook
MIG	Minnesota IMPLAN® Group
NEPA	National Environmental Policy Act
NAICS	North American Industry Classification System
NRA	Net Residential Adjustment
PAPA	Pinedale Anticline Project Area
PFO	Pinedale Field Office
REIS	Regional Economic Information System
RMP	Resource Management Plan
ROD	Record of Decision
SCRHCD	Sublette County Rural Health Care District
SIC	Standard Industrial Classification
SLIB	State Lands and Investment Board
SEIS	Supplemental Environmental Impact Statement

Abbreviation	Title
USDI	United States Department of Interior
USFS	United States Forest Service
WOGGC	Wyoming Oil and Gas Conservation Commission
WYDOT	Wyoming Department of Transportation

EXECUTIVE SUMMARY

The Phase I Sublette County, Wyoming Socioeconomic Impact Study was finalized in January of 2008 (Ecosystem Research Group 2008c). The Phase I report documented concerns over insufficient socioeconomic analyses in the National Environmental Policy Act (NEPA) process for both the Bureau of Land Management's (BLM) planning level Pinedale Field Office (PFO) Resource Management Plan (RMP) and the project level Final Supplemental Environmental Impact Statement (FSEIS), which analyzed an additional 4,399 wells in the Pinedale Anticline Project Area (PAPA). The lack of forewarning of significant socioeconomic impacts to the infrastructure of the county is particularly troublesome. County officials currently react to these impacts after the fact rather than plan for them. The county commissioners firmly believe that they need more notice and a better understanding of potential impacts to their county.

As Wyoming Governor Dave Freudenthal and U.S. Senator Mike Enzi stated in their October 30, 2008 letter to Sublette County Commissioner Joel Bousman characterizing the recent BLM socioeconomic analyses for the NEPA processes noted above:

> What emerged from these federal processes was a realization that the National Environmental Policy Act (NEPA) is ill-equipped to deal with this important topic. The state has also attempted to help offset impacts to local governments with specific impacted communities funding. Our perception is that these efforts have provided some help, but judging from the mail and telephone calls we have received, they too are seen as insufficient. Thus, there is a clear need for a meeting specifically dedicated to discussing the socio-economic issues facing Sublette County in this exciting and challenging time.

Senator Enzi stressed that whenever possible, actual data should be used for analysis as opposed to data obtained through models or approximations. The Senator's comment underscores a problem common to estimations or assumptions: they should be checked frequently as the process unfolds to ensure that they remain valid and to afford the earliest opportunity for corrections. If assumptions are not consistently monitored, unintended consequences often develop.

The Phase II report analyzes many socioeconomic indicators including population, housing, employment, wages, unemployment, personal and household income, education, roads and transportation, crime and law enforcement, medical services, and water and sanitary waste. The IMpact Analysis for PLANning (IMPLAN®) modeling software is used for projections as well as verification of past trends. Particular attention is devoted to population trends, governmental revenues, and governmental expenditures. Specifically, Phase II of the Sublette County Socioeconomic Impact Study focuses on these areas:

- Identifying and quantifying the impacts of energy development
- Determining the cost of mitigating those impacts
- Developing ongoing monitoring and mitigation strategies to refine the processes.

During the course of the Phase II Socioeconomic Impact Study, the economic situation has changed in the United States. Media sources ranging from the Casper Star Tribune (Gearino 2009) to the New York Times (Krauss 2009) report that energy companies are decreasing drilling activity nationally as well as locally. This downturn indicates potential variation in the data that ERG received during the initial stages of Phase II research, especially in the area of anticipated production and drilling schedules.

KEY FINDINGS

- The current structure of revenue generation and distribution does not adequately fund the energy-impacted infrastructure improvements required in Sublette County.

- Energy operators in Sublette County paid approximately $1.1 billion in taxes on oil and gas production in 2008. Of these receipts, Sublette County and its municipalities directly received 5.86% or $66.4 million.

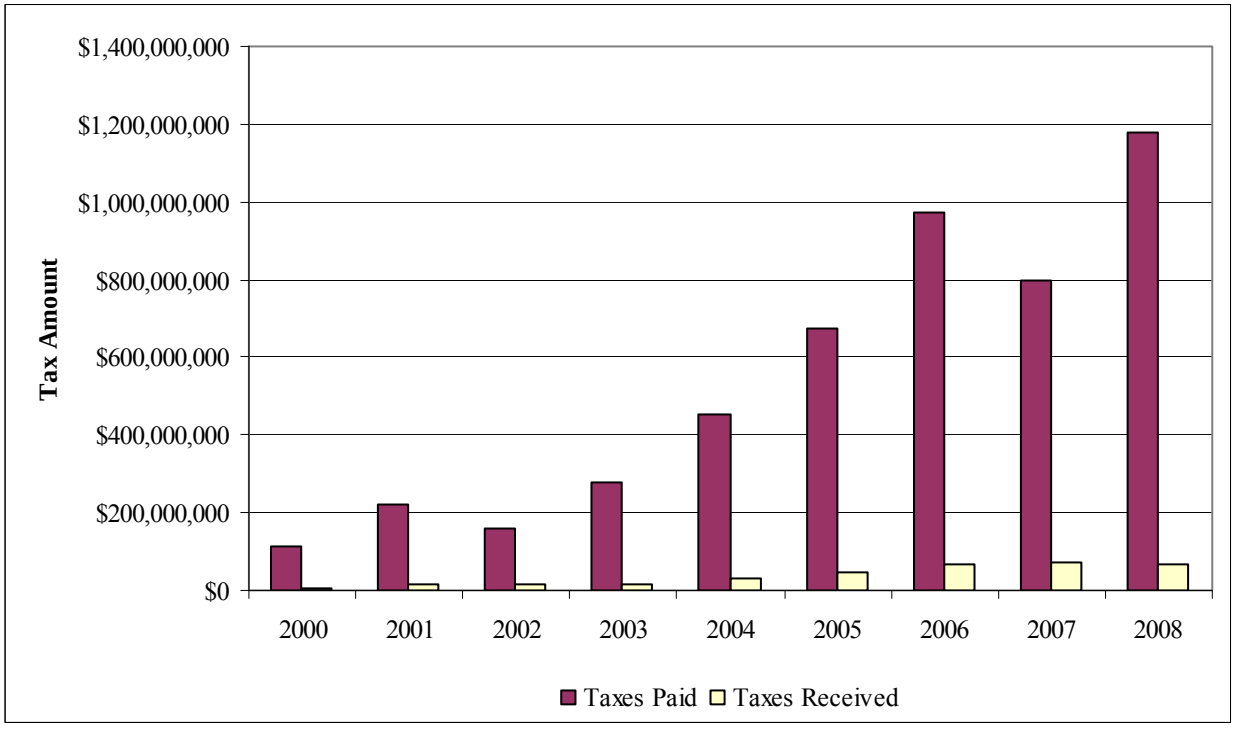

Figure ES-1 Operator-paid taxes on production in Sublette County and taxes directly received by Sublette County 2000–2008 (Federal Mineral Management Service 2009; Wyoming Department of Revenue 2009; Wyoming Legislative Handbooks 2009; Wyoming State Treasurer's Office 2009)

- Although Sublette County and the towns of Pinedale, Marbleton, and Big Piney have spent approximately $60.6 million over the past four years on capital improvements, more than $160 million is still needed to address currently identified projects.

POPULATION

- From 2000 to 2007 there was a 34% increase in Sublette County population with an average annual population growth of 286 people.
- Historically, annual population changes averaged 48 people per year between 1930 and 1990, and 108 people a year from 1990 to 2000.

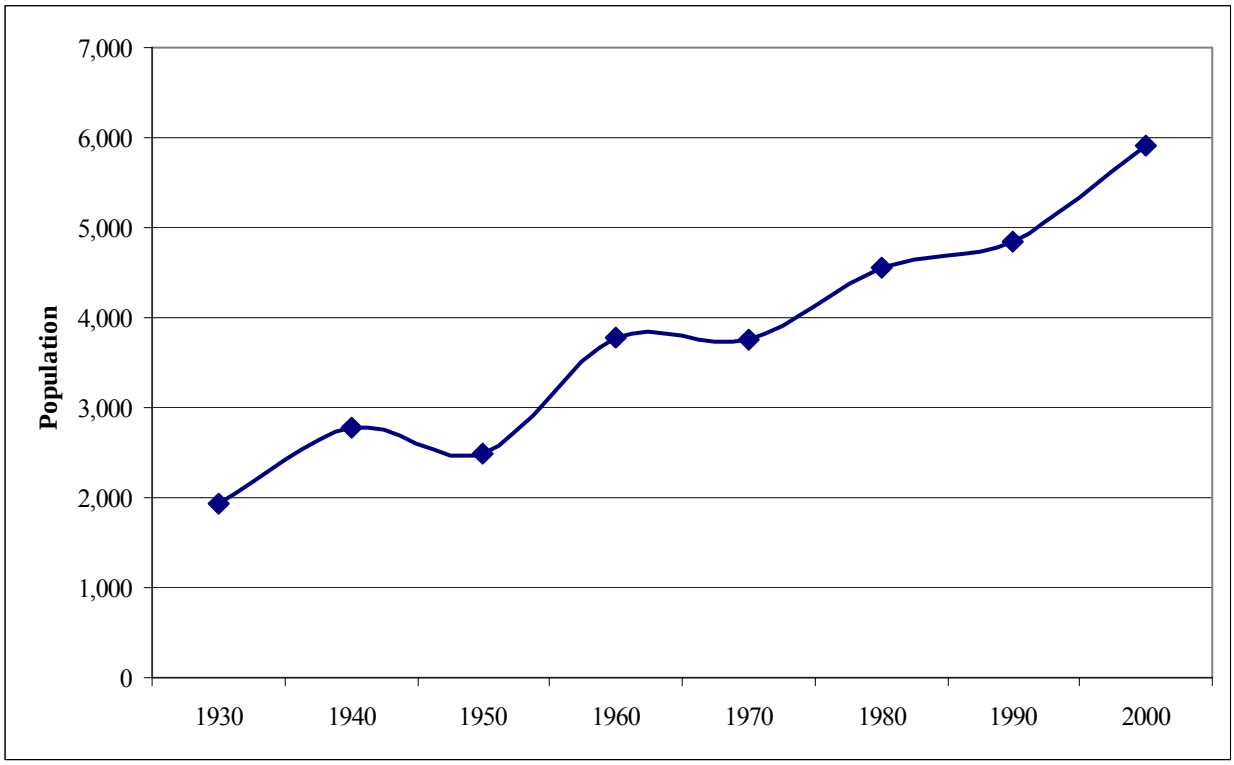

Figure ES-2 Sublette County U.S. Census Bureau population counts 1930 to 2000 (Wyoming Department of Administration and Information 2002, 2009)

REVENUES

The pace of oil and gas activity has surged in the past decade. Street and road repairs, sewer and water system upgrades, and renovations to municipal facilities are just some of the items on the long list of urgent infrastructure projects. The towns of Big Piney, Marbleton, and Pinedale and Sublette County still need $160 million to address current infrastructure needs, despite having already spent $60.6 million

(Table ES-4). Money is scarce for such a wealthy county. The Pinedale Anticline Final Supplemental Environmental Impact Statement (FSEIS), Record of Decision (ROD), and approved PFO RMP allow for an additional 7,000 wells in the area (USDI 2008). Growing populations will be prevalent for years to come, as will the need for infrastructure upgrades.

Sublette County and its municipalities are experiencing problems that stem from the oscillation between the positive and negative effects of growth. To provide stability, Sublette County should determine (a) if overall revenues from energy development are sufficient to cover additional costs associated with energy development, and (b) if Sublette County receives enough of the overall revenues to cover costs associated with energy development. If revenues do not cover the cost of development, tax rates should be examined and adjusted. If overall revenues are adequate, then the tax structure should be reviewed so the county receives a large share of revenues.

- Revenues flowing into Sublette County and its municipalities originate from several sources. Some revenue streams, such as county ad valorem taxes and state sales and use taxes, are paid by residents, local businesses, and the oil and gas industry. Other sources of revenue, such as severance and federal mineral royalties (FMR), are paid solely by energy operators.

- Of particular financial interest is the analysis of taxes paid by energy operators within Sublette County and the distribution of those taxes back to the county. The impacts of energy development and the costs to mitigate them are generally assumed to be offset by the increased revenues from development activities. This does not hold true for Sublette County and is a major focal point of this report. A careful review of revenues, expenditures, and energy-related impacts finds that the current structure of revenue generation and distribution does not adequately fund infrastructure improvements required in Sublette County. This is not to say that the taxes paid by energy companies are insufficient to compensate for their impact in local communities. Rather, an insufficient percentage of those taxes are returned to or retained by Sublette County. Chapters 3 and 4 provide detailed support for this assertion.

- Table ES-1 summarizes the taxes paid on oil and gas production and related activities within Sublette County. Federal Mineral Royalties (FMR) are federal levies of which 49% is returned to the state of origin. Severance taxes are state levies, of which the majority is retained by state government. County ad valorem taxes are levied by and remain in the county of origin. Sales and use taxes are levied by the state and municipalities. Approximately 30% of these revenues are returned to local government.

- In 2008, energy operators paid approximately $1.1 billion in taxes on natural gas and oil production within Sublette County.

Table ES-1 Summary of taxes paid by energy operators in Sublette County (Federal Mineral Management Service 2009; Wyoming State Treasurer's Office 2009; Wyoming Department of Revenue 2009, Wyoming Legislative Service Office 2009)

Fiscal Year	FMR Taxes Paid on Production in Sublette County	Severance Taxes Paid on Production in Sublette County	Sublette County Ad Valorem Taxes Paid by Energy Operators	Sales and Use Taxes Paid by Energy Operators in Sublette County	Total Tax Payments Made by Energy Operators in Sublette County
2000	$80,846,655	$25,173,752	$4,466,583	N/A	$110,486,990
2001	$161,208,285	$51,516,927	$8,840,008	N/A	$221,565,220
2002	$87,492,172*	$43,178,377	$11,649,816	$9,877,876	$152,198,241
2003	$194,961,976	$60,764,273	$9,544,782	$9,324,467	$274,595,498
2004	$293,976,937	$122,970,304	$22,559,972	$14,158,341	$453,665,554
2005	$403,520,197	$180,937,557	$32,812,443	$18,615,522	$635,885,719
2006	$599,015,975	$279,800,999	$49,992,730	$26,543,808	$955,353,512
2007	$474,725,255	$224,587,719	$45,485,890	$39,215,156	$784,014,020
2008	$781,627,816	$269,440,380	$40,892,723	$41,612,387	$1,133,573,306

* January 2002 to May 2002 data not available due to federal litigation issues

- Table ES-2 summarizes the operator-paid taxes that are received in or distributed to Sublette County. Two points are important in this table. First, the total of operator-paid taxes received in the county is significantly smaller than the total taxes paid by the operators. In 2008, Sublette County and its municipalities received 5.86% of the total taxes paid by operators working within the county. Second, the majority of taxes received in the county come from the ad valorem and sales and use receipts. This is in stark contrast of Table ES-1, which shows that the operators paid significantly more in FMR and severance taxes than the combined ad valorem and sales and use taxes.

Table ES-2 Summary of county-wide operator-paid taxes received county-wide in Sublette County (Wyoming Department of Revenue 2009; Wyoming State Treasurer's Office 2009)

Fiscal Year	FMR Taxes Received in Sublette County	Severance Taxes Received in Sublette County	Ad Valorem Taxes Received in Sublette County	Sales and Use Taxes Received in Sublette County	Total Taxes Received in Sublette County
2000	$299,052	$186,700	$4,466,583	$2,467,703	$7,420,038
2001	$294,583	$409,120	$8,840,008	$4,293,007	$13,836,718
2002	$307,205	$233,209	$11,649,816	$5,801,045	$17,991,275
2003	$282,688	$181,820	$9,544,782	$6,111,266	$16,120,556
2004	$283,168	$185,594	$22,559,972	$8,351,600	$31,380,334
2005	$288,421	$185,373	$32,812,443	$11,636,591	$44,922,828
2006	$295,254	$191,305	$49,992,730	$16,278,557	$66,757,846
2007	$311,926	$194,402	$45,485,890	$23,753,863	$69,746,081
2008	$324,594	$185,008	$40,892,723	$24,973,536	$66,375,861

- Each jurisdiction within Sublette County collects taxes from local residents and businesses. Big Piney, Marbleton, and Pinedale assess municipal levies in addition to the ad valorem taxes assessed by Sublette County. All jurisdictions exhibit a positive trend in the growth of annual receipts, but there is a marked difference in the rate of growth and overall income between the county and the municipalities.

- In Figure ES-3, the combined municipal income for Big Piney, Marbleton, and Pinedale is charted against Sublette County ad valorem income for the years 1989–2008. Growth in municipal income is insignificant for the towns compared to the increase in county ad valorem tax revenue.

- The impact of oil and gas development has had little effect on municipal income in the towns of Big Piney, Marbleton, and Pinedale. This places the towns at a distinct financial disadvantage when addressing the effects of increased population and the accompanying strain on infrastructure and services. For example, Marbleton receipts grew 82% over two decades, but this amounted to only a $24,000 increase in annual municipal revenue. In practical terms, this amount of money barely covers the annual cost of wages and benefits for a single employee.

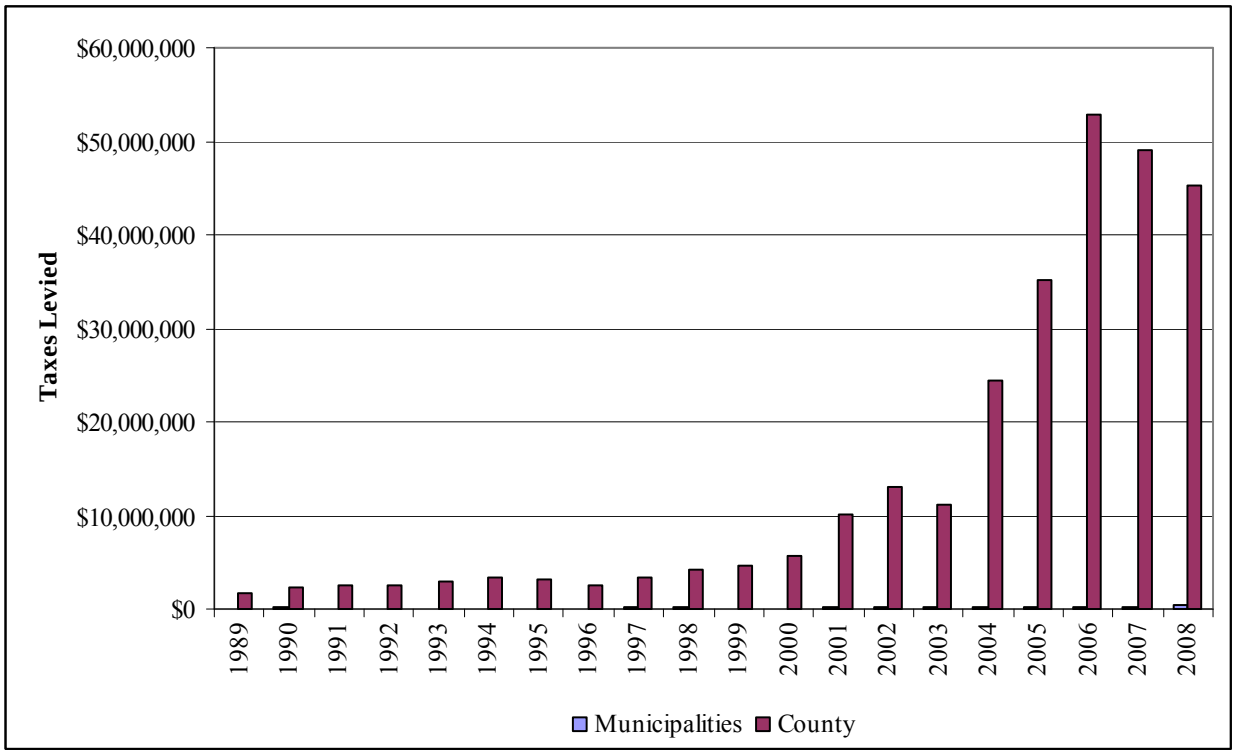

Figure ES-3 County and combined municipal taxes levied 1989–2008 (Wyoming Department of Revenue 2009)

EXPENDITURES

In recent years, county and town financial reports have shown an increased level of capital expenditures. As mentioned earlier, the county and towns have spent approximately $60.6 million in infrastructure improvements between 2005 and 2008 as summarized in Table ES-3. However, the 49 pending capital projects totaling approximately $160 million have yet to begin. Funding for infrastructure improvements is the biggest challenge facing local governments in Sublette County. The outstanding projects are summarized in Table ES-4 and detailed in Chapter 4. The accompanying map of Sublette County shown in Figure ES-6 contains additional financial information on the most urgently needed infrastructure projects. This map is located at the end of this Executive Summary.

Table ES-3 Completed capital projects in Sublette County 2005–2008 (Sublette County, Town of Pinedale, Town of Marbleton, Town of Big Piney 2005, 2006, 2007, 2008)

County/Town	2005	2006	2007	2008
Big Piney	$1,093	$7,712	$194,269	$382,155
Marbleton	$767,109	$2,094,780	$1,928,706	$1,163,609
Pinedale	$687,247	$5,998,416	$3,559,623	$1,478,429
Sublette County	$3,038,078	$6,713,520	$7,789,970	$24,792,794
Total	$4,493,527	$14,814,428	$13,472,568	$27,816,987
Cumulative Total	**$60,597,510**			

Table ES-4 Sublette County and towns anticipated capital expenditures (Arthur 2008; Hurd 2008; Lankford 2008; Murphy 2008; Ninnie 2008)

County/ Town	Projects	Total Cost	Funds Available
Big Piney	One groundwater maintenance project Seventeen road/sewer replacement projects	$9,256,754	$400,000
Marbleton	Two water well projects Two sewer treatment projects One water line project Two sewer line projects One curb/gutter/paving project One sidewalk project	$13,279,855	$3,700,797
Pinedale	Six sewer line projects Three water treatment and metering projects Five street projects One sewer treatment project	$82,267,068	$10,000,000
Sublette County	Eight road maintenance projects	$55,400,000	$3,000,000
Total		**$160,203,677**	**$17,100,797**

ENERGY INDUSTRY WORKFORCE

- Population is a primary factor in determining the extent of socioeconomic impacts. Drilling activity occurs during the initial stages of well development and involves the greatest number of personnel. Current projections anticipate the drilling of over 7,000 wells in the Pinedale Anticline and Jonah fields, the majority of them over the next ten to twelve years. Two thousand workers are expected to be employed in Sublette County through 2018, the peak employment year. Drilling rates are expected to decline between 2018 and 2025, with an accompanying drop in population. Figure ES-4 shows the expected worker counts for the current Jonah and Pinedale Anticline drilling schedules. The red bars indicate the workers performing drilling activities.

- The production phase is expected to last 40 years per well and requires fewer workers as indicated by light blue lines in Figure ES-4. When all drilling activity is complete, approximately 250 production workers will remain in Sublette County.

- Reclamation activity is the least labor-intensive task and is performed when production ceases. Reclamation is expected to begin in 2048 and continue through 2065. Population impacts from this phase of development are very small.

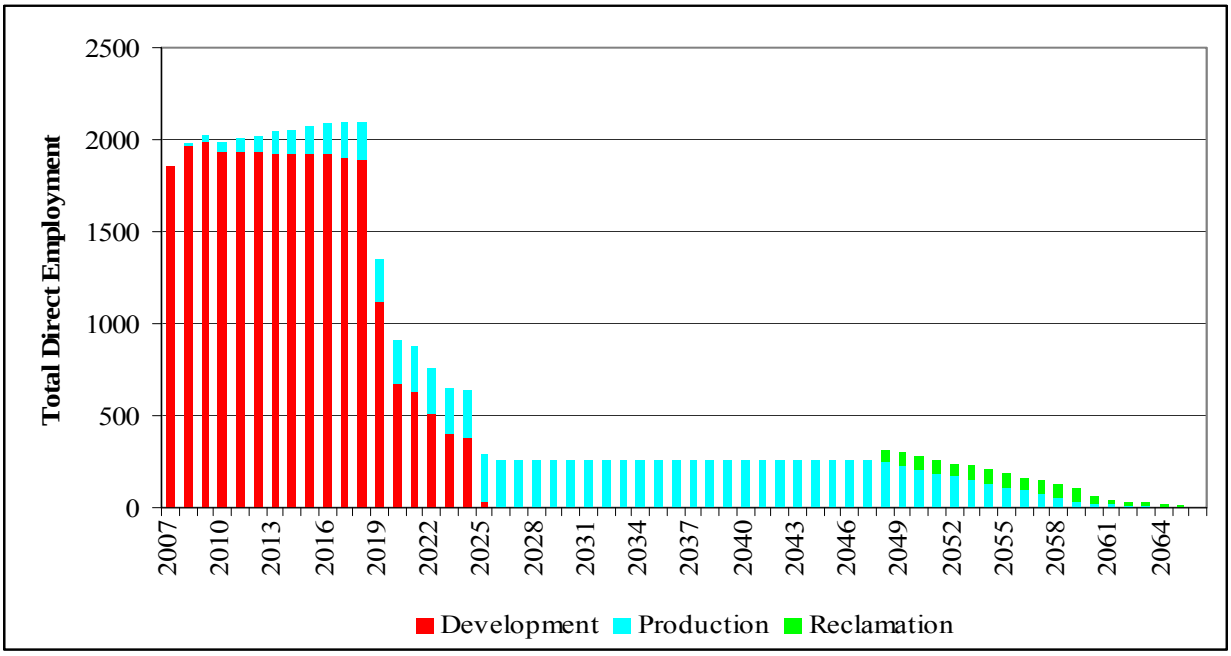

Figure ES-4 Projected total annual FTE employment for current Jonah and Pinedale Anticline drilling schedules (USDI 2006a, 2006b)

- At this time, Jonah and Pinedale Anticline drilling schedules have the most impact on population. Absent additional development to what is planned, energy-related population in Sublette County should increase slowly over the next ten years.

- Local governments should monitor pending projects as well as existing production schedules to anticipate changes in population.

INDUSTRY SURVEY

In November and December, 2008, Ecosystem Research Group (ERG) sent data requests to 23 oil and gas companies operating in Sublette County, Wyoming. The questionnaires asked for detailed information on employee projections, employee and family housing, short- and long-term anticipated operations, and recent taxes/assessments paid by each company for energy production in Sublette County. Table ES-5 lists the companies who received the survey.

Table ES-5 Energy companies surveyed regarding activity in Sublette County (Ecosystem Research Group 2008a)

Anschutz Corporation	Berry Petroleum	BP
Cimarex	Grynberg Petroleum Company	Questar E&P
Devon Energy Production	Marathon Oil Company	Shell
EnCana Corporation	Merit Energy Company	Stone Energy
EOG Resources	Newfield Exploration	Ultra Petroleum
ExxonMobil	Ominex	Berco Resources
Gasco Energy, Inc.	Chevron/Texaco	Plains Exploration & Production Company
Williams Field Services Co., LLC & Wamsutter, LLC	Yates Petroleum Corporation	

- Responses were received from eight companies. To maintain confidentiality, all responses are aggregated. Information on taxes paid by the companies for 2007 and 2008 are summarized in Table ES-6. The reported taxes paid are consistent with information reported by federal, state, and local governments.

Table ES-6 Total taxes paid by energy operators in Sublette County (Ecosystem Research Group 2008a)

Year	Reported Taxes Paid
2006	$716,629,548
2007	$710,895,571

EMPLOYMENT AND PERSONAL INCOME

- Economic development in Sublette County between 2003 and 2007 has been substantial with employment rising 62% in four years. More remarkable are growth rates in household income at 128% and total personal income at 81%. Figure ES-5 shows the growth in average annual wages by sector from 2001 to 2007.

- Unemployment in Sublette County has declined since 2003. Although this trend parallels the state and nation, the county's 1.5% unemployment rate is lower than Wyoming's 3% rate and much lower than the nation's 4.6% rate. According to letters from the towns of Marbleton and Big Piney, employers in Sublette County often struggle to find employees to fill vacancies because unemployment levels are so low.

- Sublette County has the second highest cost of living index in Wyoming; a typical bundle of goods costs more in Sublette County than in any other county in Wyoming except for Teton County.

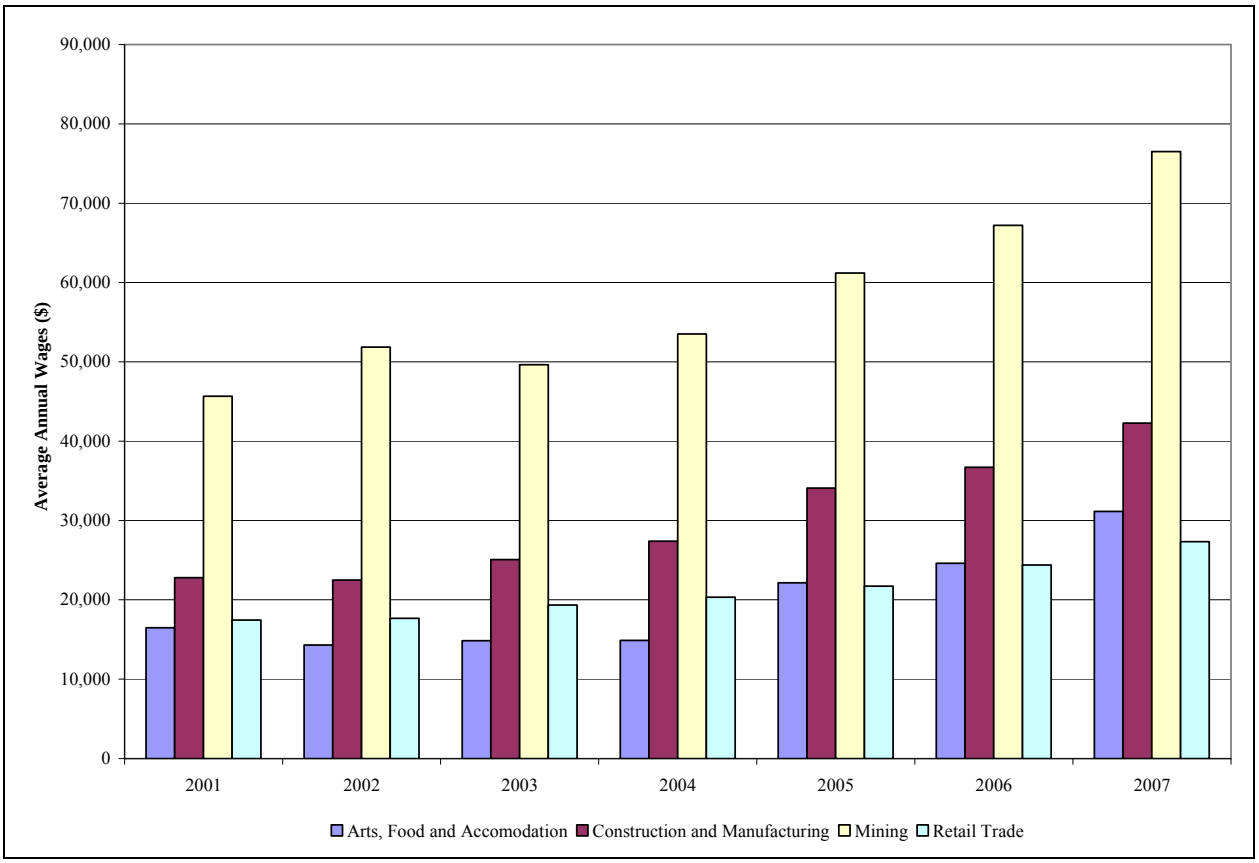

Figure ES-5 Average annual wages by sector, 2001–2007 (Bureau of Labor Statistics 2008)

- In accordance with wage increases, inflation in southwest Wyoming has consistently been above both the state of Wyoming and the nation since the 4th quarter of 2004.

- This document proposes a set of indicators to track social and economic change generated by oil and gas development. The monitoring plan outlined in this document is intended to provide an annual update to communities, local governments, and federal agencies interested in and involved with management of energy-related impacts.

HOUSING AND SOCIAL SERVICES

- Periods of high drilling activity can bring over 1,500 workers to the county, all of whom require living quarters of some kind. Sublette County has a limited amount of temporary housing, so workers and their employers have had to deal, at times creatively, with the housing shortage. From 2003 to 2007, population in Sublette County increased 28% yet households decreased 20%. However, the housing shortage is believed to be easing, as evidenced by a drop in building permits issued in 2008 (Meyers 2009).

- Of nine businesses who provide temporary housing in Sublette County, five indicated that over 75% of their visitors are from the oil and gas industry, with two businesses quoting a figure of 90%. Most establishments indicated a slight decrease in business during the winter months.

- Housing prices have increased since oil and gas development arose in Sublette County with a trend of $21,207 annually (Wyoming Community Development Authority 2009).

- Increasing traffic is a statewide matter in Wyoming, but Sublette County's growth surpasses the statewide average. Traffic in Sublette County increased 86% from 2000 to 2007 while Wyoming increased 19% over the same time period (Wyoming Department of Transportation 2008).

- The number of juvenile arrests annually increased from 13 in 2000 to 25 in 2007 (U.S. Department of Justice 2007).

- The Sublette County Rural Health Care District expects a deficit of approximately $5 million for FY2009-10 which they plan to finance with their depleting savings (Gatzke 2009).

MITIGATION STRATEGIES

Several methods have been discussed to mitigate the lack of funding to address infrastructure impacts as a result of energy development on public lands. The following points have been discussed among the commissioners as possible mitigation strategies.

- Make changes to the Federal Mineral Royalties distribution. Ask the Wyoming Congressional delegation to allow more of the federal monies to come back to the states and to ensure that monies are directed to impacted communities.

- Establish a fund directly related to oil and gas development that specifically benefits communities or regions experiencing growth. A permanent fund could be developed that reflects the same principles as used by the Norwegian Government Pension Fund or the Permanent Fund established in Alaska. In these examples, revenues from energy development are retained for future investment and growth. Distributions are made to residents while retaining a majority of fund principal.

- Create a coalition of energy-impacted counties to be a vehicle for the exchange of ideas as well as a presence in the state legislative process. A coalition of county officials could serve as a forum for education and a catalyst for introducing change. Efforts in this area could be made by hired lobbyists.

- Consider procedural options under Wyoming's Industrial Siting Act (ISA) (Wyoming Statute 35-12-101). Socioeconomic reporting requirements differ between ISA and the BLM Land Use Planning Handbook

(LUPH) (H-1601-1) Appendix D (USDI 2005). While similar in nature, each document has a different focus: the ISA was developed "to execute an application/permit procedure that will help protect the natural environment and quality of life within the state of Wyoming," whereas the BLM's goal is to "understand and reconcile differing perspectives" while "balancing the competing needs, interests, and values" of the public. Given the lack of success of the BLM's planning level and project level analysis, ISA could provide better socioeconomic requirements.

- Reallocate Wyoming state severance tax receipts so that additional funds are directed toward energy-impacted counties.

PRIORITY INFRASTRUCTURE PROJECTS

Local governments in Sublette County have worked together to create a single priority list of their most urgent infrastructure needs. The estimated cost to implement this list is $71.1 million, of which the county and towns are short $62.6 million.

In a February, 2009 letter to Wyoming Governor Freudenthal, the collective jurisdictions of Big Piney, Marbleton, Pinedale, and Sublette County described the urgent infrastructure projects in detail. The following excerpts of this letter illustrate the challenges faced by local government.

Sewer and Water Repair and Maintenance

Pinedale's existing sewer infrastructure is 80 years old and disintegrating. Current sewer and water lines are made of clay that is cracked and broken throughout the system. All lines within Pinedale will be replaced by 2014. Phases 5 and 6 of the Pinedale Sewer Replacement Project will replace 32,000 linear feet of pipe. At the same time, roads affected by these phases will be repaired or resurfaced. Marbleton's existing sewer lagoon freezes during the winter and has been out of compliance with the State of Wyoming's Department of Environmental Quality standards for at least the past eight years (Murphy 2008). Big Piney's water and sewer lines are 50 years old and made of cast iron. Lines are broken throughout the system and must be replaced. Big Piney has already replaced the town's sewer lines and is in the process of replacing all water lines. At the same time, affected roads will be repaired or resurfaced.

Table ES-7 lists the highest priority sewer and water repair and maintenance projects in Sublette County's towns. Additionally, the overall project costs, the funds currently available for each project, and the shortfall for each project are identified.

Table ES-7 Sewer and water repair and maintenance costs (Arthur 2008; Hurt 2008; Murphy 2008; Ninnie 2008)

Location	Project	Project Cost	Funds Available	Shortfall
Big Piney	Water Line Replacement	$9.1 million	$400,000	$8.7 million
Marbleton	Aerated Sewer Lagoon	$5.1 million	$2.9 million	$2.2 million

Location	Project	Project Cost	Funds Available	Shortfall
Pinedale	Sewer Repair, Phases 5 and 6	$16.4 million	$2.0 million	$14.4 million
Total		**$30.6 million**	**$5.3 million**	**$25.3 million**

Water Supply and Treatment

Two water towers serve the town of Marbleton and are the only sources of water for energy operators in the area. One of Marbleton's two water towers is very old and structurally unreliable, requiring replacement. In addition, Marbleton recently drilled an additional well to provide domestic and commercial water but found that fluoride levels were unacceptably high. Treatment is required to remove the excess fluoride. Pinedale's drinking water is obtained from Fremont Lake. The Environmental Protection Agency requires all surface water to be filtered or otherwise treated for microbes. Big Piney has two historic landfills that must be monitored to maintain water quality. Table ES-8 lists the highest priority water supply and treatment projects in Sublette County.

Table ES-8 Water supply and treatment costs (Murphy 2008; Ninnie 2008)

Location	Project	Project Cost	Funds Available	Shortfall
Big Piney	DEQ-Mandated Groundwater Monitoring	$125,000	None	$125,000
Marbleton	Fluoride Treatment, Water Tower Replacement	$1.6 million	$249,000	$1.4 million
Pinedale	EPA-Mandated Ultraviolet Water Treatment	$3.8 million	None	$3.8 million
Total		**$5.5 million**	**$249,000**	**$5.3 million**

Road Repair and Maintenance

Traffic on the Calpet Highway and the Dry Piney Road has increased tremendously since 2000, turning them into high-use roads with an accelerated need for maintenance. A substantial number of vehicles travel these roads annually, with 20% being larger than a pickup. The cost of paving is approximately $1.1 million per mile. Table ES-9 lists the highest priority road repair in Sublette County.

Table ES-9 Road repair (Lankford 2008)

Location	Project	Project Cost	Funds Available	Shortfall
Sublette County	Repave Calpet Highway and Pave Dry Piney Road (32 miles)	$35 million	$3 million	$32 million

Figure ES-6 Sublette County and Towns projected infrastructure projects

Placeholder for 11x17 map

1. INTRODUCTION

1.1 SUMMARY OF PHASE I REPORT

In 2007, Ecosystem Research Group (ERG) was retained by the County Commissioners of Sublette County, Wyoming, to conduct a review of the Resource Management Plan (RMP) Draft Environmental Impact Statement (DEIS) for the Pinedale Field Office, which was being written at that time. The commissioners were concerned that the DEIS did not adequately assess the socioeconomic impacts to Sublette County as required by the National Environmental Policy Act (NEPA). ERG performed a detailed socioeconomic impact analysis and identified specific areas where Sublette County and its municipalities were impacted by energy development. ERG released the Phase I Report of the Sublette County Socioeconomic Impact Study in early 2008. In particular, ERG reported the following:

- Population rose 24% between 2000 and 2006, in contrast to a historical increase of 2% annually. The considerable increase in population directly affects the availability and price of housing; compromises the capacity and longevity of water, sewer, and waste facilities; and increases the load on emergency medical services, law enforcement, county and municipal government, and the legal system.

- As a consequence of significant population increases, Sublette County and its municipalities require large capital projects to address the associated infrastructure impacts. Basic services such as road and bridge maintenance and adequate water and sewer facilities now consume significant portions of annual budgets. The three largest municipalities in Sublette County have allocated between 60% and 90% of their general fund budgets to capital improvement projects in 2007–2008, compared to a range of 8% to 28% in 2000 and 2001.

- In 2006, the averages sales price of a house in Sublette County was 30% higher than the rest of the state. For many residents of Sublette County, the average annual wage of $20,000-$30,000 was not sufficient to purchase a home at this increased price. The lack of affordable housing in turn affected employee recruitment and retention, as workers could not find reasonably priced living accommodations.

- Arrests rose by 93% between 2000 and 2006, increasing demand for law enforcement personnel and affecting the workload of the local judicial system.

- Vehicle traffic grew 79% between 2000 and 2006. In addition to creating congestion where none had previously existed, this traffic increased premature wear on road surfaces and increased dust abatement treatment on unpaved roads throughout the county. Heavy trucks were a large component of this increase.

- Emergency medical response calls rose by 168% during this time period, necessitating the construction of a new ambulance building, hiring of additional EMS staff, and purchase of new equipment. The two medical clinics within Sublette County were renovated to increase capacity for patient treatment.

Revenues to the county and towns increased during this time period, but did not increase sufficiently to pay for the necessary capital improvements. The local governments of Sublette County simply were neither prepared nor financially able to address the infrastructure impacts of natural gas development in the area.

Between 2005 and 2008, Sublette County and its municipalities invested approximately $60.6 million in infrastructure improvements, of which the state contributed $15 million through State Lands and Investment Board (SLIB) funding (Norman 2008). Representatives from all local jurisdictions met in December, 2008 and January, 2009 to compile a single list of urgent infrastructure projects deemed essential for the continued health, safety, and well-being of those who live and work within the county and towns. The cost to implement these projects totals $71.1 million. At this time, local government is able to allocate $8.5 million to complete these improvements. Additional funding of $62.6 million is needed.

1.2 PURPOSE OF PHASE II REPORT

Phase II of the Sublette County Socioeconomic Impact Study focuses on quantifying the impacts of energy development, determining the cost of mitigating those impacts, and developing ongoing monitoring and mitigation strategies to maintain socioeconomic stability in Sublette County throughout this period of energy development. Through detailed budget analysis, computer modeling, trend analysis, and meetings and communication with government officials, ERG has calculated the operational and infrastructure costs required to provide basic municipal services to residents, employers, and workers in Sublette County. These costs are significant, and the present system of revenue generation and distribution does not adequately fund the anticipated projects, equipment, and personnel needed to accomplish this task.

The remainder of this report provides a comprehensive analysis of social and economic impacts experienced by Sublette County and its municipalities in the presence of energy development.

1.3 BACKGROUND AND METHODS

1.3.1 Study Area

Sublette County is located in western Wyoming and covers approximately 3.2 million acres, 80% of which is public land. One of 23 counties in the state, Sublette County ranks sixth in geographical size. The Wind River Range runs north to south along the eastern portion of the county, the Gros Ventre Wilderness lies to the north, and the Wyoming Range runs along the western side. The central portion of the county is a valley comprised of a sagebrush steppe eco-region. Elevation ranges from 6,280 feet in the valley to 13,400 feet in the Wind River Range.

1.3.1.1 *Sublette County History*

Sublette County, the youngest county in Wyoming, was created in 1921. It was named after the fur trapper and explorer William L. Sublette and carved from land that was previously parts of Lincoln and Fremont counties. Long before the county's incorporation, however, the area was important for fur trapping as well as sheep and cattle ranching. The area held a number of historic fur-trading rendezvous between 1824 and 1840 which brought together native populations and some of the West's most famous mountain men and explorers. Permanent populations of cattle and sheep ranchers began to settle the area in the mid to late 1800s.

Geographically isolated from railroads and population centers, the county retained its "frontier" culture for far longer than many areas of Wyoming and the West, and it remained one of the least densely populated areas in the state until well into the 20th century. Today the county has three incorporated towns: Big Piney, Marbleton, and Pinedale.

1.3.1.2 *Big Piney and Marbleton*

One of the first settlements in the area was the town of Big Piney, which was formally incorporated on July 5, 1913, though it was well-established by the late 1880s. According to one historical account, by 1890 "the burgeoning frontier town boasted a general store, dance hall, blacksmith shop, and a saloon dubbed 'Bucket of Blood'" (Blevins et al. 2005). In 1930, the town was given the distinction of being called the "Ice Box of the Nation", recording the lowest temperatures in the country.

The town of Marbleton was founded about a mile to the north of Big Piney in the early 1900s to escape flooding problems in Big Piney, but the new settlement stayed smaller in size until the mid- to late-20th century. The two towns, while close in proximity, continue to retain separate governments. Today, the towns are comprised largely of descendants of the original settlers, and a number of working cattle ranches surround the town's boundaries. A Public Broadcast System television documentary titled "Do You Mean There Are Still Real Cowboys?" was filmed in Big Piney in 1987, and cattle drives down the town's streets are still a common occurrence.

Oil and natural gas fields were discovered in southwestern Sublette County and northeastern Lincoln County early in the 20th century but they were not developed in earnest until the 1950s and 1960s, and with greater intensity again during the late 1970s and early 1980s. The Calpet and Riley Ridge fields placed growth pressures on Big Piney and Marbleton during these times, especially the early 1980s. The two towns saw industry infrastructure and businesses move into the region, along with increases in permanent and temporary residents. Gas processing plants were constructed in northern Lincoln County, and a gas and oil operator (today called EOG Resources) placed its headquarters in Big Piney. The

company constructed a series of houses for its employees; EOG still uses them for this purpose today. A "tent city," also known as a "man-camp," was constructed south of town to accommodate temporary workers.

The "boom" in Big Piney and Marbleton was relatively short-lived, occurring primarily between the late 1970s and early 1980s, but the intense growth, lasting infrastructure, and long-term jobs in the area changed the culture of the towns to reflect the "boom and bust" mentality. Toward the end of the era, the towns began to plan for large growth only to see the activity dry up as Exxon's "Phase II" failed to materialize (Blevins et al. 2005). As a testament to the influence of oil and gas, Big Piney constructed old drilling derricks in a town park along U.S. Highway 189, and the Marbleton town logo includes a cowboy riding a pumping oil well.

1.3.1.3 *Pinedale*

The more northern town of Pinedale was established in 1912. Also largely a ranching town (along with some logging and forestry operations at the time), it was chosen over Big Piney to be the county seat soon after the county's establishment in 1921 in what was a very close and contested election. Various illegal voting activities were alleged, and Pinedale's selection as county seat strained relations between the county's two population centers. Pinedale later became a tourist destination for hunting, fishing, and hiking, as well as a stopover for tourists on their way to nearby Grand Teton and Yellowstone National Parks. Pinedale also is comprised of descendants of many of the original settlers, although the outlying areas of the town and northern Sublette County have seen slow but steady growth, largely due to second-home owners and retirees attracted to the viewsheds, wildlife, and small town atmosphere.

Natural gas reserves were discovered in the Pinedale Anticline in the 1950s, but they were not extensively developed until half a century later. Even when development increased in the 1970s and 1980s, Pinedale and the more northern portions of the county did not see nearly as many impacts from the oil and gas activity as did the southwestern portion of the county. While the mining culture and the mentality of "boom and bust" were incorporated into Big Piney and Marbleton, the town of Pinedale retained its small town culture of ranching, mountaineering, and frontierism, and it began to cultivate the growing interest from the tourism industry in the area's abundance of available recreation opportunities.

1.3.1.4 *Sublette County Today*

Sublette County contains more than 1,300 lakes, a small percentage of which feed tributaries forming the Green River. As many of the lakes are remote, they provide solitary recreation opportunities for fishing and camping. Boating is possible on the more accessible lakes and on the Big Sandy Reservoir located at

the south end of the county. Some of these water sources are necessary to the productive farms and ranches in the area.

Eighty percent of the county is public land including BLM, State, and U.S. Forest Service (USFS). As shown in Table 1-1, the county's largest land owner is the BLM, followed closely by the USFS. Private lands make up the third largest land ownership category, followed by state of Wyoming lands.

Table 1-1 Sublette County land ownership (Wyoming Geographic Information Science Center 2007)

Owner	Acres	Percent
BLM	1,272,968	40%
USFS	1,142,994	36%
Private Lands	596,237	19%
State of Wyoming	122,999	4%
Other (open water)	32,888	1%
Total	**3,168,086**	**100%**

* Data from GIS Land Cover dataset does not specify ownership of water coverage

Two major wilderness areas in Sublette County include the Bridger Wilderness and the Gros Ventre Wilderness. The county's federal lands offer a wealth of recreational opportunities, including hiking, mountain biking, rock climbing, snowmobiling, hunting, and downhill and cross-country skiing.

According to the U.S. Census Bureau, Sublette County's estimated population was 7,925 in 2007. In addition to Big Piney, Marbleton, and Pinedale, other Sublette County towns include Cora, Daniel, Boulder, and Bondurant. Pinedale is the county seat and the largest town in the county with an estimated population of 2,043 in 2007. After grade school, students from LaBarge (in Lincoln County) attend high school in the Sublette County School District No. 9. (Note: School attendance numbers will include La Barge residents; otherwise, La Barge data were not incorporated into the document.)

1.3.2 Data Sources

For the purpose of analyzing recent trends, current data for Sublette County were requested from state and county personnel. Much of the county-specific data were provided by Jeffery Jacquet, former socioeconomic analyst for Sublette County, and Laurie Latta, coordinator of the Sublette Community Partnership. Additional data were gathered from federal, state, and county database clearinghouses; related reports; and personal communication with county and town personnel and employees and representatives of the private sector. The results are summarized in tables and figures throughout the document. Trends and statistics are presented, and projections are quantified and explained for multiple subject areas.

In certain areas of the report, requested data either was not supplied or was supplied too late to be incorporated. While ERG received information from all companies with extensive oil and gas production in Sublette County, the industry questionnaire discussed in Appendix A was not returned by many of the smaller companies in Sublette or surrounding counties.

1.3.2.1 *Industry*

Data regarding industry development were supplied by the Wyoming Oil and Gas Conservation Commission, eight oil and gas companies operating in Sublette County, and the Pinedale Bureau of Land Management (BLM) Office. Data were taken from related NEPA documents as well, including the Pinedale RMP, the Jonah Infill Drilling Project (JIDP) Final Environmental Impact Statement (FEIS), and the Pinedale Anticline Final Supplemental Environmental Impact Statement (FSEIS).

1.3.2.2 *Population*

Population information came from the following sources:

- United States Census Bureau (2009)
- Wyoming Department of Administration and Information Economic Analysis Division (2009)
- Wyoming Department of Revenue (2009)

1.3.2.3 *Employment*

Statistics for employment were collected from the U.S. Department of Labor, Bureau of Labor Statistics (BLS) website (United States Department of Labor 2008b). In 2001, the federal government changed the classification system used to report employment and wages. It was changed from the Standard Industrial Classification (SIC) to the North American Industry Classification System (NAICS). At this time, some industry classifications were broken into smaller categories, some were combined into larger categories, and some were reclassified into a different industry sector. Because of this, employment and wage data by sector were not directly compared with any data before 2001. At the time of collection for this report, 2007 data were the most up-to-date data available.

Customized tables were created from the State and County Employment and Wages section of the BLS website, which supplies data for the Quarterly Census of Employment and Wages (2001 forward). Our query specified all private establishments within Sublette County. For each major industry (with a two-digit NAICS code) ERG selected five attributes to compare: number of employees, number of establishments, total wages in thousands, average weekly pay, and average annual wage.

Since each BLS employment sector made up a considerably smaller percentage of the employment population than the Mining Sector, some employment sectors were combined for overall comparison with the Mining Sector. For example, Chapter 6 shows the largest employment sectors (aside from mining) are Construction and Manufacturing (combined BLS sectors NAICS 23, 31, 32, and 33), Retail Trade (combined BLS sectors NAICS 42, 44, and 45), and Arts, Food and Accommodations (combined BLS sectors NAICS 71 and 72).

Unemployment data came from the United States Department of Labor and the State of Wyoming Department of Employment.

1.3.2.4 *Public Services/Quality of Living*

Housing numbers were derived from information from the United States Census Bureau, Wyoming Community Development Authority, Wyoming Department of Administration and Information Economic Analysis Division, and the Wyoming Department of Revenue. Median family income information was obtained from the U.S. Department of Housing and Urban Development. Housing costs were collected from the Wyoming Department of Administration and Information Economic Analysis Division; additional information was gathered from the Wyoming Community Development Authority.

Information regarding school enrollment numbers came from the district offices at School District No. 1 and School District No. 9. Supplemental statistical information came from the Wyoming Department of Education.

Data for the Transportation section were collected from the Wyoming Department of Transportation (WYDOT) statewide database, the Pinedale WYDOT office, and the Sublette County Road and Bridge Department. Traffic count information was supplied by WYDOT in the form of a statewide database. The database was queried for selected points along roads and highways in Sublette County. The WYDOT traffic count database provided year-by-year traffic estimates specific to sections of highways and offered traffic estimates both for all vehicles and for heavy trucks alone.

General crime data came from the Unified Crime Reports and Wyoming Attorney General's Office, Division of Criminal Investigation. Current data or county-specific data not included in the reports were supplied by Richard Russell, Wyoming Unified Crime Reporting program manager. Circuit court data were extracted from the Circuit Court Monthly Activity Reports; however, information regarding circuit court appearances came from Curt Haws, Circuit Court judge, Circuit Court of the Ninth Judicial District in Sublette County. Data for the Sublette County Jail were supplied by Lieutenant Wes Johnston of the Sublette County Sheriff's Department. Data regarding emergency medical services and patient visits were collected from the Sublette County Rural Health Care District.

Water and sanitary waste data were collected from the clerk at the Big Piney town offices and from the assistant clerk at the Marbleton town offices. The town of Pinedale was unable to supply usage data for its water and sewer. However, Pinedale recently upgraded its sewer treatment plantto accommodate the increase in population.
Data sources for solid waste included Rick Hoffman, Sublette County supervisor, who supplied data on tonnage for the Sublette County Landfill and Materials Analysis Reports by Account; Colleen Grandsen, owner/operator of BNC Trash Service; and Marti Seipp, Sublette Citizens for Recycling Impact Analysis.

Data regarding social and cultural changes from the natural gas development are largely qualitative in nature, consisting of interviews and surveys performed by the University of Wyoming and other state agencies, as well as interviews that have appeared in the media.

1.3.2.5 *Economy and Revenue*

Information regarding Sublette County and municipal revenues was collected from the Wyoming Department of Revenue and the Wyoming Legislative Service Office. County and municipal expenditures were extracted from the Sublette County budgets and the municipal budgets for Big Piney, Marbleton, and Pinedale.

1.3.3 Data Analysis

Analyses of past and current trends in population, employment and income, public services and quality of living, and economy and revenues are summarized in tables and figures throughout the document. As data were available, trends from 1990 onward and from 2000 onward are presented and compared. Qualitative and anecdotal information supplemented quantitative information where data were lacking.

ERG estimated the economic effects resulting from oil and gas development in Sublette County using the IMPLAN® economic impact modeling system. Scenarios were analyzed for 2009 to 2018 using figures from the JIDP FEIS and Pinedale Anticline FSEIS ranging from 555 new wells in 2009 to 529 new wells in 2018. Economic effects on Sublette County including direct, indirect, and induced effects were reported. Indirect effects include employment effects arising from inter-industry effects. Induced effects result from household expenditures in the input/output analysis. Direct-hire labor force for drilling and production was based on the JIDP FEIS and Pinedale Anticline FSEIS. All numbers are reported in average job equivalents (AJEs).

2. POPULATION

2.1 POPULATION TRENDS

Since its inception in 1921, Sublette County has maintained its position as one of the least populated counties in Wyoming, both in total population and in population per square mile. Between 1930 and 1990, Sublette consistently ranked in the bottom three of Wyoming's 23 counties in overall population. During the same time period the county ranked either 22nd or 23rd in population density, never rising above one person/square mile. The 2000 census showed small movement in these categories when Sublette County population reached 5,920 residents, rising to 20th of 23 in total population and attaining a population density of 1.21 persons/square mile.

Despite the low overall population numbers, the number of residents in Sublette County has grown at a relatively rapid pace over the past 15 years. A main contributor to population growth is oil and gas development in and around the county. In the early 1990s a struggling economy in California caused a large outflow of population from that state (Liu 2007). This outflow went mainly into neighboring states and the nearby Rocky Mountain region (Liu 2007). From 1991 to 1995, the state of Wyoming showed a 1% yearly increase in population, which for the prior decade (1981 through 1990) had declined about 1% per year. This trend decreased as the California economy strengthened in the late 1990s (Liu 2007). However, as the emigration from California into Wyoming was declining, the oil and gas industry was growing in and around Sublette County, causing the population to remain on the rise. Based on historical trends, the county's population would be expected to increase 20% between 2000 and 2010; however, with the increased growth rate from 2000 to 2006 due to the oil and gas activity, population is expected to rise 30% between 2000 and 2010 (Jacquet 2006). The population has increased to the point that it is stressing the infrastructure designed to support it (Jensen 2007; Town of Big Piney 2007a; Town of Marbleton 2007a). From county offices to local diners, businesses are short staffed and/or require more space to operate under the increased workload (Jensen 2007; Lankford 2007; Town of Big Piney 2007a; Town of Marbleton 2007a). Compounding the problem is the transient nature of much of the oil and gas workforce, which makes the population difficult to track and the impact to county infrastructure hard to determine. (Town of Marbleton 2007a).

Since 2000, county population has increased from 5,920 people in 2000 to an estimated 7,925 people in 2007. The town of Pinedale holds the largest portion of the population with 2,043 people in 2007, followed by Marbleton at 919 and Big Piney at 476. Table 2-1 shows the population trends for Big Piney, Marbleton, Pinedale, and Sublette County from 2000 to 2007. Overall growth within the county was slightly under 34% during this period, averaging an annual gain of 286 people.

Table 2-1 Population for Sublette County and Municipalities 2000–2007 (Wyoming Department of Administration and Information 2008)

Year	Big Piney	Marbleton	Pinedale	Sublette County
2000	408	720	1,402	5,920
2001	404	712	1,383	5,897
2002	421	742	1,433	6,145
2003	431	762	1,479	6,317
2004	438	780	1,545	6,575
2005	451	806	1,647	6,880
2006	453	848	1,818	7,241
2007	476	919	2,043	7,925
Percentage Growth	16.67%	27.64%	45.72%	33.86%

In contrast to the 34% population growth seen in Sublette County during this decade, the historical population growth was much smaller. As seen in Table 2-2, the county gained an average of 48 residents each year between 1930 and 1990, increasing to 108 residents each year between 1990 and 2000.

Table 2-2 Population growth in Sublette County 1930–2000 (Wyoming Department of Administration and Information 2002, 2008)

Year	Sublette County Population
1930	1,944
1940	2,778
1950	2,481
1960	3,778
1970	3,755
1980	4,548
1990	4,843
2000	5,920

Sublette County's growing population correlates with the increase in oil and gas drilling in the area as oil industry workers and their families relocate to the area. While energy development is not the only factor influencing population growth, the industry does influence the county's population. Figure 2-1 illustrates a relationship between population and energy activity, displaying annual population counts and the annual number of wells drilled within the county. Both trends show a marked change between 2000 and 2002, showing an increase in the annual rates of population change and the number of wells drilled.

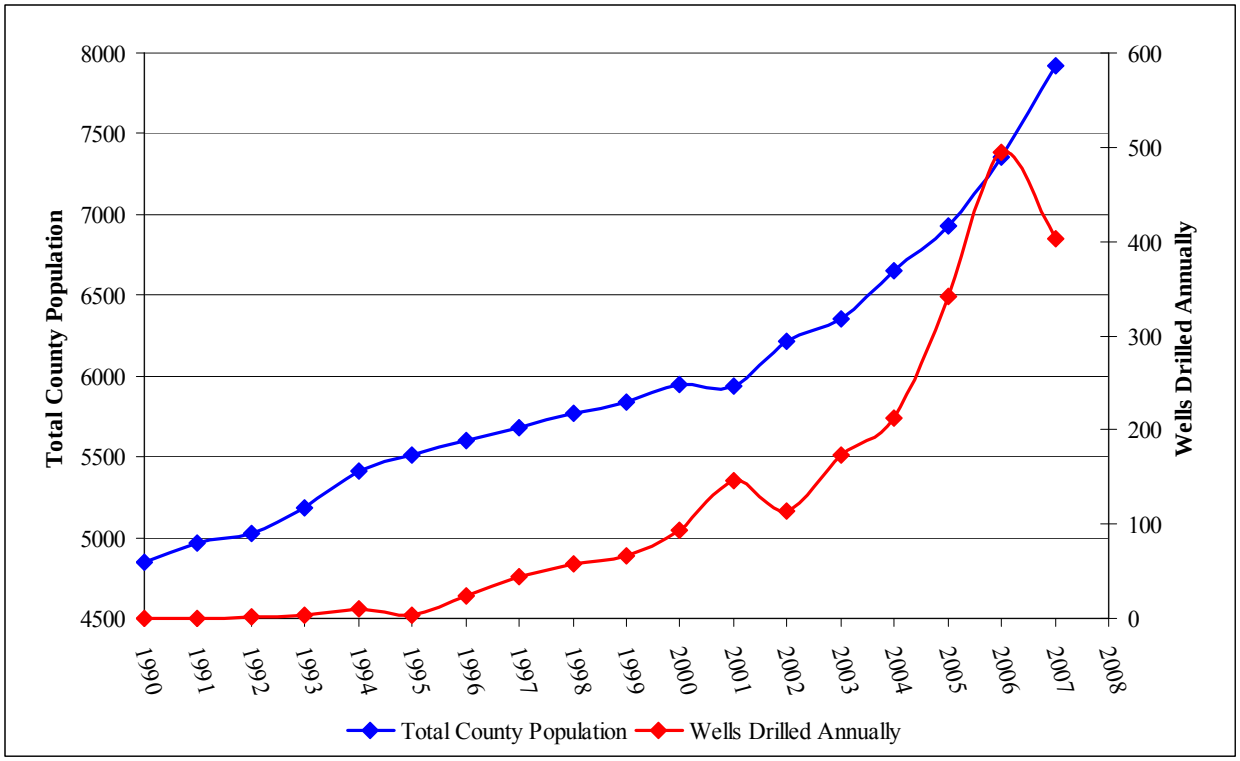

Figure 2-1 Population change and wells drilled annually 1990–2007 (Wyoming Oil and Gas Commission 2007)

2.1.1 Age Demographics

As a component of population growth, age demographics are changing in Sublette County. The number of young workers is rising as energy development increases, notably in the population segment between the ages of 15 and 24. Figure 2-2 shows that the 15–24 age group in Sublette County grew approximately 60% between 2000 and 2007. This contrasts with statewide demographics showing that the proportion of young people remained relatively stable during the same time period, even decreasing in the 25–44 age group.

In addition, Figure 2-2 shows that the 55–64 age group increased over 50% during the current decade. It is unknown whether the growth in this demographic segment is linked to the energy industry. While it is not likely that the energy industry employs a large number of workers in this age group, it is a possibility. It is also reasonable to assume that retirees or those nearing retirement age would choose to relocate to Sublette County, regardless of any industry affiliation.

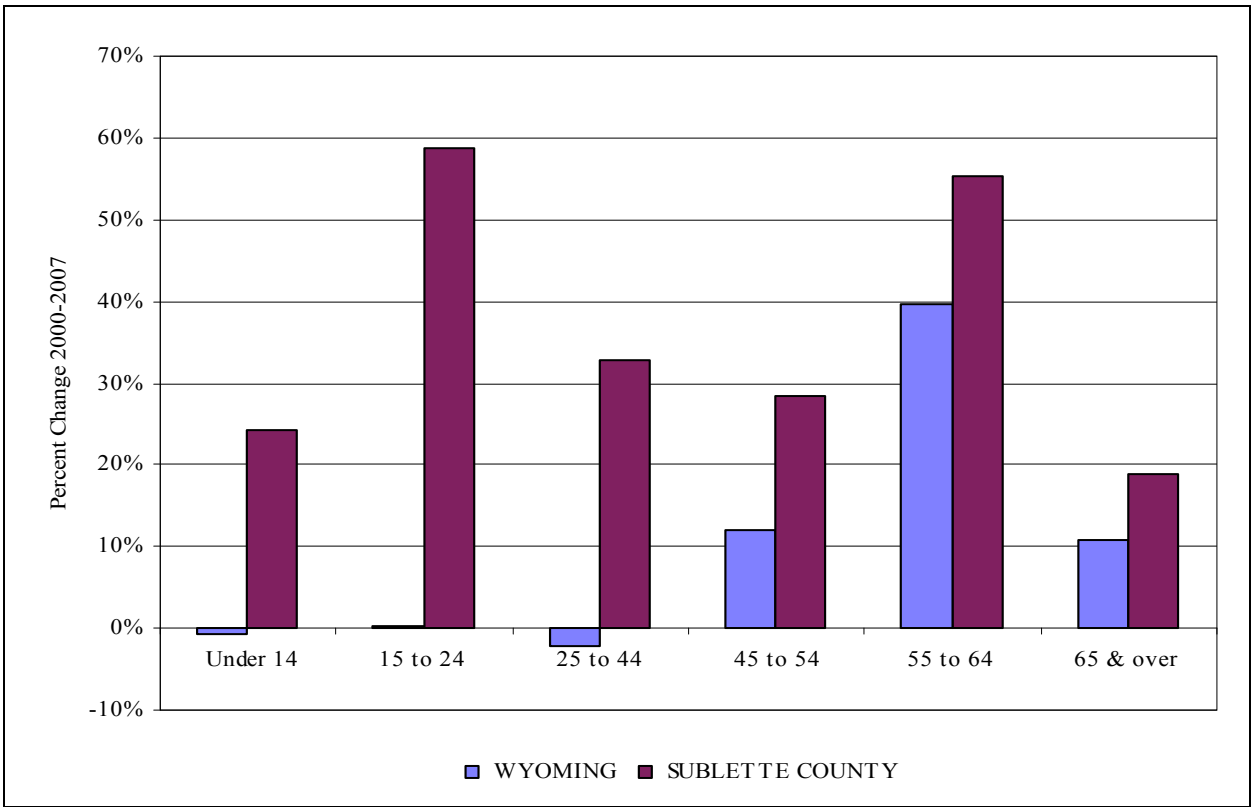

Figure 2-2 Sublette County and the State of Wyoming population age classes percent change 2000–2007 (United States Census Bureau 2007)

2.1.2 Organic vs. Energy-Related Growth

As stated previously, population in Sublette County increased by an average of 48 residents per year between 1930 and 1990, and then grew by approximately 108 new residents annually between 1990 and 2000. Following this most recent growth trend, Sublette County's population would be expected to increase by 749 persons by the year 2007 to total 6,679 residents. However, the actual population growth began substantially deviating from that trend in 2004, and by 2007 the population was 1,243 people higher than would have been expected. This change can be strongly correlated with the presence of the energy industry.

The difference between the natural, or organic, population growth rate of the 1990s and the energy-impacted growth rate of the 2000s is illustrated in Figure 2-3. The latest surge in oil and gas drilling commenced in 2000 and rose sharply to reach 100 wells per year by 2004. The organic population growth line closely follows the actual population count until 2004, and then also sharply rises. The increases in well drilling and population are similar in timing and rate, strongly suggesting cause and

effect. Drilling activity in Figure 2-3 reflects actual figures to present, then projected figures based on estimated drilling schedules in the Jonah and Pinedale Anticline fields.

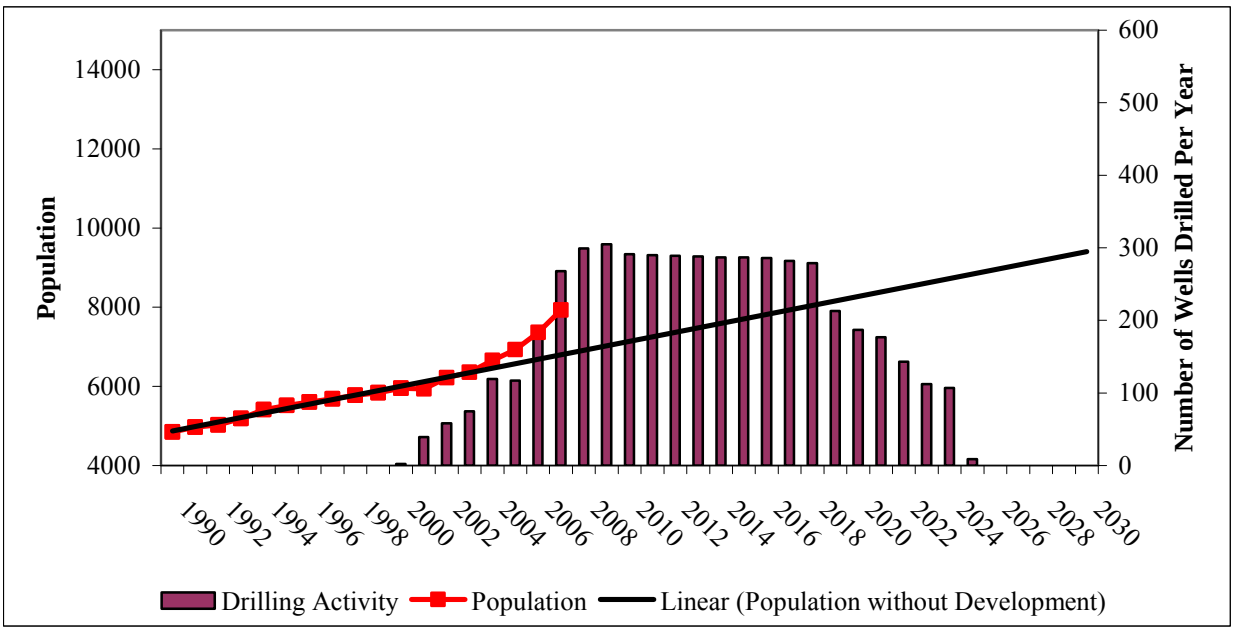

Figure 2-3 Organic population growth and energy-impacted population growth compared with annual well completions (Wyoming Department of Administration and Information 2002, 2008)

2.2 PROJECTIONS THROUGH LIFE OF PLAN

2.2.1 State of Wyoming Population Projections

Sublette County's population is expected to continue increasing through 2018, the estimated peak employment year. The Wyoming Department of Administration and Information estimates county populations through 2030 using U.S. Census Bureau data. As the last official census was in 2000, before the latest surge in energy development in Sublette County, these estimates likely underestimate Sublette County's population. However, these estimates are supplied in Table 2-3 for 2010, 2015, 2018, and 2020. It is interesting to note that the Department of Administration and Information projects an annual population increase of 420 persons between 2010 and 2020, which is even larger than the 286-person increase seen between 2000 and 2007.

Table 2-3 Population projections through 2020 (Wyoming Department of Administration and Information 2008)

Year	Big Piney	Marbleton	Pinedale	Sublette County
2010	551	1,063	2,364	9,170
2015	673	1,299	2,887	11,200
2018	748	1,445	3,212	12,460
2020	803	1,550	3,447	13,370

2.2.2 Energy Industry Population Projections

Oil and gas companies operating in Sublette County, Wyoming were recently surveyed regarding drilling projections, personnel counts, and other business-related issues. Complete results from this survey are tabulated in Appendix A of this report. Pertinent information from the industry survey is also included throughout the report. Regarding population, the questionnaire stated, "Please provide the following: total number of employees (contract, subcontract, part- and full-time) working in Sublette County during 2007 and 2008 and projected for 2009, including information you may have regarding families who accompany employees to the area" (Ecosystem Research Group 2008a). Some respondents supplied data that included employee and family size numbers. When companies did not include family size information ERG assumed an average family size of 3.1 persons, which is the value used by several companies who provided family size estimates.

The industry responses indicated an increase of personnel living in the county between 2007 and 2008 with a slight drop in 2009. Table 2-4 presents summarized responses. Note that industry responses were limited to the eight of 23 companies operating within Sublette County; data is limited accordingly. Worker and family member count was 1,478 in 2007, 1,702 in 2008, and 1,630 in 2009. It is important to note that these estimates do not include responses from all companies surveyed, as some companies either provided incomplete or no information.

Table 2-4 Number of personnel and family members living in Sublette County (Ecosystem Research Group 2008a)

Year	Workers and Family Members
2007	1,478
2008	1,702
2009	1,630

The U.S. Census Bureau conducts population counts each decade and estimates population growth for the subsequent ten-year period until another count is conducted. It is likely the current intercensal population estimates do not include energy workers or their families, as the 2000 census was taken before oil and gas development in Sublette County gained a strong presence. Table 2-5 shows the intercensal and industry

population estimates for 2009 to 2018. For 2010 to 2018, ERG estimated the industry workforce from industry's estimates for 2007–2009. Recognizing that these values are only approximations, ERG treated the sum as a midpoint with a deviation of plus or minus 15%. Thus the total population projection value of 10,380 residents in 2009 could range from a low of 8,823 to a high of 11,937.

Table 2-5 Sublette County total population estimates (Ecosystem Research Group 2008a; Wyoming Department of Administration and Information 2008)

Year	Census Estimate	Industry Estimate	Total Population Estimate	Low Population Projection	High Population Projection
2009	8,750	1,630	10,380	8,823	11,937
2010	9,170	1,638	10,808	9,187	12,429
2011	9,600	1,552	11,152	9,479	12,825
2012	10,050	1,524	11,574	9,838	13,310
2013	10,420	1,557	11,977	10,180	13,774
2014	10,800	1,141	11,941	10,150	13,732
2015	11,200	1,122	12,322	10,474	14,170
2016	11,600	1,116	12,716	10,809	14,623
2017	12,020	1,109	13,129	11,160	15,098
2018	12,460	1,122	13,582	11,545	15,619

3. FINANCIAL TRENDS – REVENUES

3.1 INTRODUCTION

The oil and gas industry has long been a fixture in the state of Wyoming. Since the beginning of oil and gas exploration in the late 1800s, Wyoming's petroleum industry has been an important, and often vital, economic component affecting state, county, town, and individual finances.

With a state population of 515,000 and almost 98,000 square miles of land, the ratio of five residents per square mile suggests that activities such as creating and maintaining infrastructure and providing social services to rural residents would place a heavy burden on taxpayers. However, mineral revenues (including those from oil and gas production) contribute significantly to an array of infrastructure elements such as building roads, constructing schools, providing social services, developing water systems, and funding local and state government operations. At an average of 59.051 mills in 2008, taxpayers in Sublette County have one of the lowest mill levies in the state, approximately 4.252 mills lower than the 2008 statewide average levy of 64.303 mills.

Revenues flowing into Sublette County and its municipalities originate from several sources and vary widely in their overall contribution to government revenues. Some income streams, such as county ad valorem taxes and state sales and use taxes, are paid by residents, local businesses, and the oil and gas industry operating within the county. Other sources of revenue, such as severance taxes, federal mineral royalties, and payments in lieu of taxes, are paid solely by energy operators and/or the federal government. This section describes the major revenue sources in Sublette County and analyzes their historical changes.

Of particular interest in this section is the analysis of taxes paid by energy operators within Sublette County. Communities often assume that the impacts of energy development and the cost to mitigate them are offset by the increased revenues generated by development activities. This assumption does not hold true for Sublette County and is a focus of this report. A careful review of revenues, expenditures, and energy-related impacts finds that the current structure of revenue generation and distribution does not adequately fund the necessary infrastructure improvements required in Sublette County. This is not to say the taxes paid by energy companies are insufficient to compensate for their impact in local communities. Rather, an insufficient percentage of those taxes are returned to or retained by Sublette County. Chapter 3, in conjunction with the discussion of fiscal expenditures contained in Chapter 4, provides detailed support of this assertion.

3.2 SALES AND USE TAX

Wyoming collects sales taxes on goods purchased within its borders and assesses a use tax on items purchased outside Wyoming but destined for use within the state. The base rate of taxation on these transactions is 4%. Sales and use taxes are collected and distributed by the state, with distributions allocated as follows (State of Wyoming 2008):

- 30% is returned to the originating county and/or municipality;
- 1% is retained for state-wide distribution and administrative overhead; and
- 69% is retained for usage by the state.

In addition, counties have the option to assess an additional 1% optional sales tax and/or 1% capital facilities tax, subject to voter approval. Where assessed, the state retains 1% of these funds for administrative overhead and the remaining 99% is returned to the originating jurisdiction. These optional levies are not assessed by Sublette County at this time, which gives county residents one of the lowest tax rates in Wyoming. Fremont, Park, and Washakie counties join Sublette in assessing the minimal sales and use tax rate of 4% (Wyoming Economic Analysis Division 2008).

Table 3-1 and Figure 3-1 provide historical data on sales and use tax distributions between 1989 and 2008. In all cases this revenue stream increased noticeably in 1998 and 2001 and maintained rapid growth between 2003 and 2007. Overall, receipts grew exponentially during this twenty year period, ranging from a low of 3,182% for Big Piney to 5,600%–5,900% for Marbleton, Pinedale, and Sublette County. It should be noted that the revenue generated through sales and use tax is the major stream of income for the towns in Sublette County. Figure 3-1 displays county-wide sales and use tax distributions.

Table 3-1 Sales and use tax annual distributions, 1989–2008 (Wyoming Department of Revenue 2009)

Fiscal Year	Big Piney	Marbleton	Pinedale	Sublette County	County-wide Sales and Use Distributions
1989	$51,880	$52,593	$104,384	$236,467	$445,324
1990	$71,579	$72,563	$144,019	$326,255	$614,416
1991	$71,287	$73,587	$145,467	$328,761	$619,102
1992	$60,194	$84,092	$156,685	$341,443	$642,414
1993	$57,918	$80,913	$150,761	$328,534	$618,126
1994	$63,285	$88,410	$164,730	$358,975	$675,400
1995	$73,719	$102,986	$191,889	$418,160	$786,754
1996	$70,914	$99,068	$184,590	$402,253	$756,825
1997	$96,901	$135,351	$252,168	$549,552	$1,033,972
1998	$200,973	$289,555	$513,892	$1,139,434	$2,143,854
1999	$216,458	$302,278	$563,076	$1,227,229	$2,309,041
2000	$231,331	$323,049	$601,767	$1,311,557	$2,467,704

Fiscal Year	Big Piney	Marbleton	Pinedale	Sublette County	County-wide Sales and Use Distributions
2001	$402,442	$562,000	$1,046,881	$2,281,686	$4,293,009
2002	$399,802	$705,533	$1,383,628	$3,312,084	$5,801,047
2003	$418,178	$737,961	$1,447,224	$3,507,905	$6,111,268
2004	$567,647	$1,010,272	$2,044,204	$4,729,477	$8,351,600
2005	$789,003	$1,401,281	$2,831,643	$6,614,682	$11,636,609
2006	$1,105,566	$1,958,458	$3,980,769	$9,233,764	$16,278,557
2007	$1,620,713	$2,862,616	$5,771,071	$13,499,463	$23,753,863
2008	$1,702,453	$3,008,499	$6,074,692	$14,187,892	$24,973,536

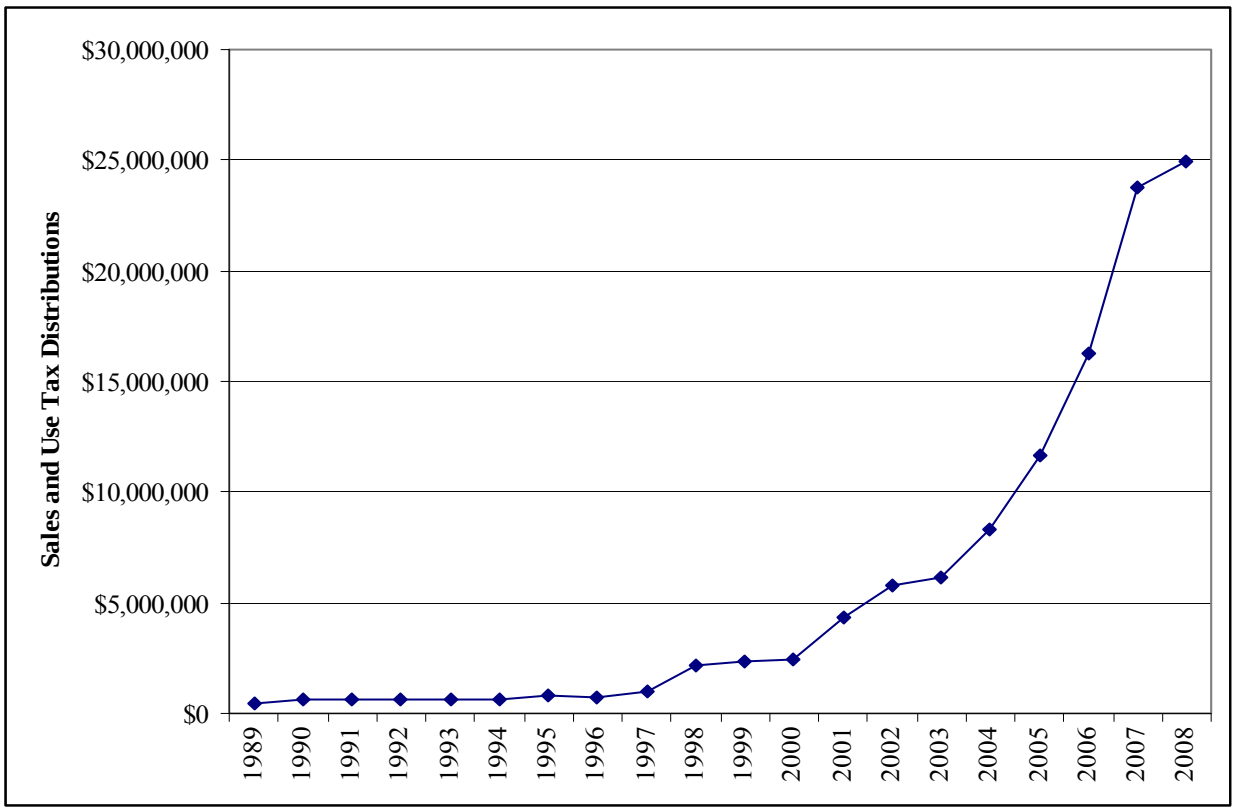

Figure 3-1 County-wide historical sales and use tax distributions, 1989–2008 (Wyoming Department of Revenue 2009)

In 2002 the Wyoming Department of Revenue began to provide detailed information on sales and use tax receipts by business class. Table 3-2 shows the Mining Sector is responsible for approximately half of the sales and use taxes generated within Sublette County. Thus, the Mining Sector is a major contributor to the revenue stream from sales and use tax receipts.

Table 3-2 County-wide sales and use taxes by business class, 2002–2008 (Wyoming Department of Revenue 2009)

Fiscal Year	County-wide Sales and Use Taxes	County-wide Sales and Use Taxes Generated by Mining Sector	Percentage of Sales and Use Taxes Generated by Mining Sector
2002	$21,059,373	$9,877,876	47%
2003	$21,082,472	$9,324,467	44%
2004	$28,291,190	$14,158,341	50%
2005	$37,580,227	$18,615,522	50%
2006	$52,568,766	$26,543,808	50%
2007	$76,905,734	$39,215,156	51%
2008	$80,826,078	$41,612,387	51%

3.3 MUNICIPAL AND COUNTY AD VALOREM TAXES

3.3.1 Assessed Value and Millage

The Wyoming Department of Revenue administers ad valorem taxes on behalf of local counties and municipalities. For county residents and business owners, this tax is levied on industrial property, homes, and personal property. Assessors in each county determine the fair market value for homes and property and then take 11.5% of that value to determine the taxable or assessed value of industrial property and 9.5% of that value to determine the taxable or assessed value of homes and other real property. The taxable value is then multiplied by the appropriate mill levy, where each mill is equal to one-thousandth of the taxable value. For example, a home with a fair market value of $1,000,000 would have a taxable value of $95,000 ($1,000,000*9.5%). An assessment of 59.051 mills on this home (the 2008 mill levy in Sublette County) would result in a tax of $95,000*.059051, amounting to $5609.85.

For energy operators, this tax is levied on minerals (including crude oil and natural gas) at 100% of the fair market value. Thus, natural gas production valued at $1,000,000 taxed at 59.051 mills would result in a tax of $1,000,000*.059051, or $59,051.

Table 3-3 shows the historical assessed values for Sublette County from 1989 through 2008. The cumulative assessed value increased almost 80% between 2000 and 2001 and has remained in the $2 billion to $4 billion dollar range in recent years.

Table 3-3 County-wide assessed value, all property (Wyoming Department of Revenue 2009)

Fiscal Year	Grand Total Assessed Value
1989	$145,323,076
1990	$198,335,636

Fiscal Year	Grand Total Assessed Value
1991	$217,877,301
1992	$203,104,237
1993	$238,687,180
1994	$275,647,391
1995	$262,350,711
1996	$216,400,442
1997	$274,762,732
1998	$376,372,362
1999	$379,275,654
2000	$475,836,429
2001	$851,302,215
2002	$1,097,146,541
2003	$934,678,199
2004	$2,039,132,508
2005	$2,924,020,029
2006	$4,401,618,317
2007	$4,085,698,722
2008	$3,773,650,926

Millage varies by jurisdiction and by the financial need of each taxing jurisdiction. For example, counties in Wyoming are permitted to assess a maximum of 12 mills and municipalities are allowed a maximum of 8 mills. Table 3-4 shows the 2008 mill levies assessed by tax districts within Sublette County. Table 3-5 shows historical mill levies assessed within the County from 1980 to 2008.

Table 3-4 Sublette County mill levies, 2008 (Sublette County Assessor 2008)

Tax District	**101**	**102**	**111**	**112**	**113**	**150**	**900**	**914**	**950**	**951**
Area	**Rural**	**SW COR**	**HOB RAN**	**BLDR LAKE**	**RED UP GR**	**PINED ALE**	**RURAL**	**MEAD CAN**	**BIG PINEY**	**MARB LETON**
County # Prefix	**01**	**03**	**11**	**12**	**13**	**02**	**09**	**14**	**08**	**07**
Fund										
Library	0.197	0.197	0.197	0.197	0.197	0.197	0.197	0.197	0.197	0.197
Fair	0.145	0.145	0.145	0.145	0.145	0.145	0.145	0.145	0.145	0.145
Museum	0.117	0.117	0.117	0.117	0.117	0.117	0.117	0.117	0.117	0.117
Airport	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049
Recreation	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Other General Fund	10.474	10.474	10.474	10.474	10.474	10.474	10.474	10.474	10.474	10.474
Total County General	**11.482**	**11.482**	**11.482**	**11.482**	**11.482**	**11.482**	**11.482**	**11.482**	**11.482**	**11.482**
County Fire	0.518	0.518	0.518	0.518	0.518	0.518	0.518	0.518	0.518	0.518
Rural Health	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

Tax District	101	102	111	112	113	150	900	914	950	951
Area	Rural	SW COR	HOB RAN	BLDR LAKE	RED UP GR	PINED ALE	RURAL	MEAD CAN	BIG PINEY	MARB LETON
County # Prefix	01	03	11	12	13	02	09	14	08	07
Weed & Pest	0.229	0.229	0.229	0.229	0.229	0.229	0.229	0.229	0.229	0.229
Upper Gr Cemetery	0.105	0	0.105	0.105	0.105	0.105	0	0	0	0
Big Piney Cemetery	0	1.014	0	0	0	0	1.014	1.014	1.014	1.014
Improve District	0	0	8.000	8.000	6.000	0	0	0	0	0
Town General	0	0	0	0	0	8.000	0	0.000	8.000	8.000
School Foundation	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000
School Operating	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000	25.000
School Mandatory 6	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000
BOCES	0.500	0.500	0.500	0.500	0.500	0.500	0.600	0.600	0.600	0.600
School Recreation	1.000	1.000	1.000	1.000	1.000	1.000	0.500	0.500	0.500	0.500
Total School Levy	**44.500**	**44.500**	**44.500**	**44.500**	**44.500**	**44.500**	**44.100**	**44.100**	**44.100**	**44.100**
Total Mill Levy	**58.834**	**59.743**	**66.834**	**66.834**	**64.834**	**66.316**	**59.343**	**59.343**	**66.825**	**66.825**

Table 3-5 Mill levies since 1980 (Sublette County Assessor 2009)

Fiscal Year	North Rural 101	SW Corner 102	Hoback 111	Boulder Lake 112	Redstone Upper Gr 113	Pinedale 150	South Rural 900	Meadow Canyon 114	Big Piney 950	Marbleton 951
1980	61.242	58.583	0	0	0	81.101	56.229	0	63.731	81.306
1981	54.699	54.377	0	0	0	73.527	66.780	0	74.444	92.234
1982	58.162	56.205	0	0	0	75.254	58.687	0	66.291	78.225
1983	58.866	58.380	0	0	0	77.130	63.150	0	70.625	75.407
1984	59.237	58.453	0	0	0	69.372	63.119	0	70.220	80.140
1985	68.181	66.035	0	0	0	81.294	72.726	0	79.155	86.596
1986	62.869	60.464	0	0	0	77.083	63.080	0	70.492	77.640
1987	69.754	68.795	77.754	0	0	83.441	71.830	0	79.002	86.398
1988	69.750	68.266	77.750	0	0	83.861	67.802	0	74.802	82.295
1989	66.668	64.107	74.668	0	0	80.868	66.359	0	73.359	81.318
1990	63.653	60.934	71.653	0	0	78.905	69.396	0	68.667	87.589
1991	65.827	63.212	73.827	0	0	79.847	68.196	0	68.196	82.963
1992	64.141	62.885	72.141	72.141	0	78.680	70.299	0	77.474	85.617
1993	65.576	64.767	73.576	73.576	0	72.576	68.927	0	75.927	85.247
1994	63.671	62.581	71.671	71.671	0	71.059	64.841	0	72.229	80.508

Fiscal Year	North Rural 101	SW Corner 102	Hoback 111	Boulder Lake 112	Redstone Upper Gr 113	Pinedale 150	South Rural 900	Meadow Canyon 114	Big Piney 950	Marbleton 951
1995	63.569	62.581	71.569	71.569	0	70.749	66.369	0	73.549	80.839
1996	65.017	64.376	73.017	73.017	0	72.090	69.612	0	76.685	84.738
1997	66.219	65.085	74.239	74.239	0	73.519	68.903	0	75.903	83.918
1998	60.842	60.634	68.842	68.842	0	67.842	62.750	0	69.750	76.726
1999	59.382	59.336	67.382	67.382	0	66.467	63.335	0	70.420	70.420
2000	59.447	59.564	67.447	67.447	0	88.846	62.232	70.232	69.631	69.631
2001	58.819	58.987	66.819	66.819	66.819	66.262	61.559	69.559	69.002	69.002
2002	58.248	58.450	66.248	66.248	66.248	65.248	61.150	69.150	68.150	68.150
2003	58.456	58.852	66.456	66.456	66.456	65.934	62.817	70.817	70.295	66.295
2004	58.654	58.723	66.654	66.654	66.654	66.345	60.509	68.509	68.200	64.200
2005	58.219	58.984	66.219	66.219	66.219	65.820	59.084	67.084	66.685	62.685
2006	58.294	58.979	66.294	66.294	66.294	66.086	69.079	67.079	66.871	65.871
2007	59.173	59.882	67.173	67.173	67.173	66.428	59.482	67.482	66.737	66.737
2008	58.834	59.743	66.834	66.834	64.834	66.316	59.343	59.343	66.825	66.825

3.3.2 Assessed Taxes

In Sublette County, the ad valorem revenue from oil and gas entities is the most financially significant component assessed for taxation. Table 3-6 displays the historical 12-mill ad valorem revenues for Sublette County. Between 2000 and 2008, the energy industry contribution to county taxes increased from 78% to over 90%.

Table 3-6 Sublette County ad valorem taxes assessed, 2000–2008 (Sublette County 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008; Wyoming Department of Revenue 2009)

Fiscal Year	Total Ad Valorem Taxes Assessed	Ad Valorem Taxes Paid by Energy Operators	Industrial and Personal Property Taxes	Percentage of Ad Valorem Taxes Paid by Energy Operators
2000	$5,702,263	$4,466,583	$1,235,680	78.33%
2001	$10,207,862	$8,840,008	$1,367,854	86.60%
2002	$13,150,261	$11,649,816	$1,500,445	88.59%
2003	$11,206,742	$9,544,782	$1,661,960	85.17%
2004	$24,463,210	$22,559,972	$1,903,238	92.22%
2005	$35,078,515	$32,812,443	$2,266,072	93.54%
2006	$52,812,941	$49,992,730	$2,820,211	94.66%
2007	$48,999,127	$45,485,890	$3,513,237	92.83%
2008	$45,260,346	$40,892,723	$4,367,623	90.35%

Natural gas is the primary mineral produced within Sublette County, with oil a distant second. Two components determine the taxable value of produced minerals: the amount of mineral produced and the market value of that mineral. Natural gas production is measured in millions of cubic feet (mcf) and oil is

measured in barrels (bbl). As seen in Table 3-8, approximately 935 million units of natural gas were taxed in 2008 at a market value of $3.61/unit, totaling slightly over $3 billion in taxable value. Crude oil had a much higher market value in 2008, with prices of $54.74/bbl for normally producing wells and $51.92/bbl for stripper wells. Note than stripper wells are defined as those who produce less than 10 barrels of oil a day or 60,000 to 75,000 cubic feet of natural gas a day. The Wyoming Department of Revenue identifies oil-producing stripper wells but not gas-producing stripper wells.

Table 3-7 Number of wells in production in Sublette County (Wyoming Oil and Gas Conservation Commission 2008)

Year	Wells in Production
2000	1,733
2001	1,930
2002	2,114
2003	2,306
2004	2,339
2005	2,625
2006	3,436
2007	4,274

Table 3-8 Taxable values per units and total assessed valuation, 2001–2008 (Wyoming Department of Revenue 2009)

Fiscal Year	Mcf of Taxable Natural Gas	Value per Mcf	Taxable Value of Natural Gas	Barrels of Taxable Oil	Value per Barrel (Crude)	Value per Barrel (Stripper)	Taxable Value of Oil
1989	41,128,147	$1.53	$61,294,407	993,984	$12.42	$13.10	$14,604,970
1990	164,166,733	$1.16	$108,242,786	1,119,967	$15.33	$16.27	$19,358,349
1991	190,571,783	$1.16	$127,434,897	971,851	$20.32	$22.76	$20,490,880
1992	192,356,500	$1.06	$117,574,163	906,930	$17.06	$19.58	$16,213,153
1993	181,973,239	$1.13	$143,330,148	923,951	$16.18	$18.73	$16,381,422
1994	178,464,995	$1.32	$176,419,309	901,702	$13.02	$15.18	$14,972,639
1995	177,214,149	$1.11	$161,886,490	954,010	$12.50	$15.49	$15,958,743
1996	163,031,459	$0.86	$109,148,027	1,135,340	$14.28	$16.46	$20,027,642
1997	170,344,696	$1.19	$154,159,492	1,460,198	$18.17	$19.11	$29,593,476
1998	203,097,634	$1.44	$245,693,162	1,930,650	$15.89	$17.09	$37,058,944
1999	218,342,931	$1.29	$255,842,028	2,148,333	$9.56	$9.94	$26,310,216
2000	242,364,103	NA*	$325,135,208	2,705,264	NA	NA	$47,232,889
2001	278,566,815	$2.60	$649,534,420	3,321,822	$24.47	$26.61	$87,042,840
2002	335,670,667	$2.80	$888,651,595	3,609,541	$19.53	$20.65	$82,918,541
2003	421,361,317	$1.63	$699,588,667	4,229,104	$20.40	$21.87	$96,521,338
2004	512,010,402	$3.20	$1,758,636,617	4,488,555	$24.74	$24.98	$121,548,006
2005	603,172,194	$4.02	$2,564,144,305	4,655,819	$32.82	$33.19	$170,447,231
2006	808,530,579	$5.22	$3,915,189,492	5,144,424	$42.60	$44.35	$250,566,079
2007	888,533,277	$4.34	$3,469,877,790	5,731,150	$49.70	$53.49	$321,338,404
2008	935,946,345	$3.61	$3,007,854,575	7,026,826	$54.74	$51.92	$399,677,772

*2000 data not available from Mineral Tax Division

In addition to county-wide levies, each jurisdiction within Sublette County collects taxes from local residents and businesses. Historical data on these assessments are shown in Figure 3-2 through Figure 3-5 for the municipalities and the county. Each jurisdiction exhibits a positive trend in the growth of annual receipts, but there is a marked difference between the county and municipalities.

Table 3-9 Municipal and county taxes levied, 1992–2008 (Wyoming Department of Revenue 2009)

Fiscal Year	Big Piney	Marbleton	Pinedale	Total Municipal Taxes	County Taxes
1992	$10,024	$26,762	$60,507	$97,293	$2,431,599
1993	$10,959	$26,667	$37,905	$75,531	$2,856,598
1994	$11,170	$27,332	$43,338	$81,840	$3,302,572
1995	$10,883	$28,211	$51,502	$90,596	$3,140,300
1996	$10,710	$27,906	$61,972	$100,588	$2,586,772
1997	$11,050	$28,973	$67,773	$107,796	$3,285,492
1998	$11,103	$29,935	$69,843	$110,881	$4,228,094
1999	$11,837	$15,681	$71,916	$99,434	$4,539,936
2000	$12,118	$16,599	$74,756	$103,473	$5,702,263
2001	$12,368	$17,679	$81,470	$111,517	$10,207,862
2002	$13,535	$19,373	$91,084	$123,992	$13,150,261
2003	$15,247	$11,504	$105,737	$132,488	$11,206,742
2004	$16,575	$13,657	$121,324	$151,556	$24,463,210
2005	$19,230	$14,857	$146,052	$180,139	$35,078,515
2006	$31,687	$28,775	$184,523	$244,985	$52,812,941
2007	$39,654	$43,648	$230,881	$314,183	$48,999,127
2008	$31,577	$50,678	$280,115	$362,370	$45,260,346
Overall Change 1992-2008	215%	89%	363%	272%	1,761%

During the 16 year period depicted in the figures, Big Piney, Marbleton, and Pinedale receipts increased 215%, 89%, and 363%, respectively. However, these figures are somewhat misleading. Big Piney's annual municipal tax revenue increased from $10,024 in 1992 to $31,577 in 2008. Thus, the 215% increase in receipts amounted to an actual increase of only $21,553. Marbleton's situation changed in a similar fashion—the 89% increase in receipts translated to $23,916. In contrast, Sublette County tax levies grew over 1761% during the same time frame, jumping from approximately $2.4 million in 1992 to $45.3 million in 2008.

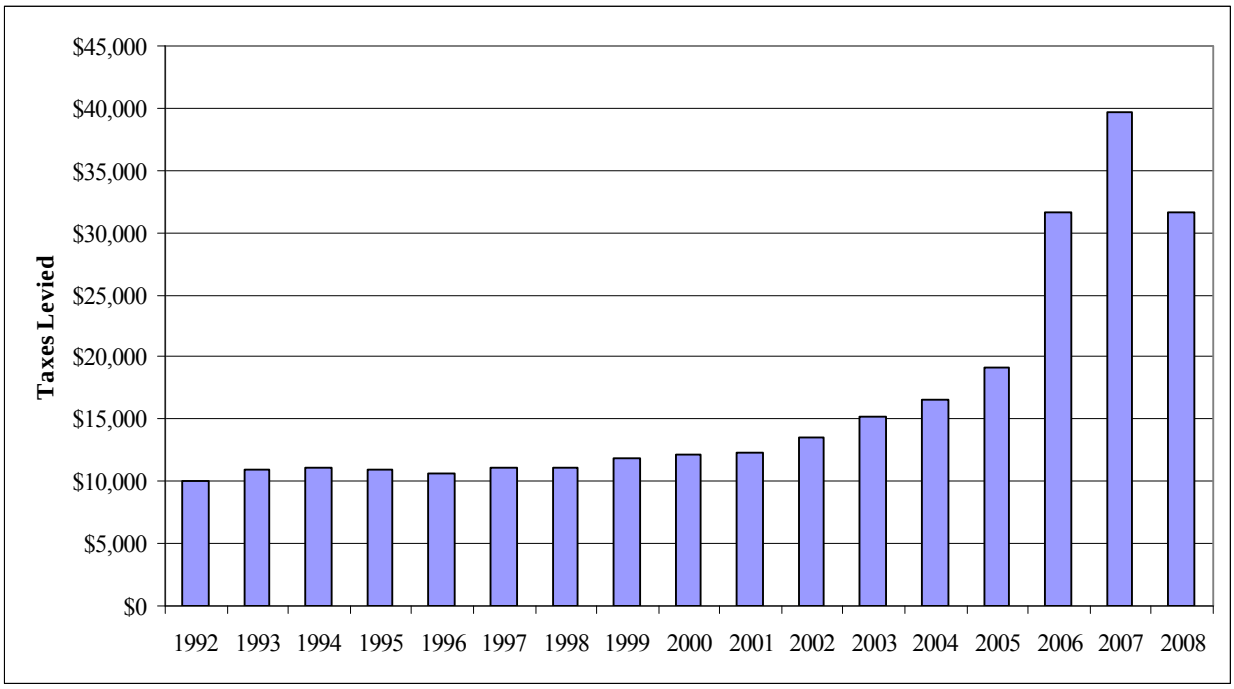

Figure 3-2 Big Piney municipal taxes levied, 1992–2008 (Wyoming Department of Revenue 2009)

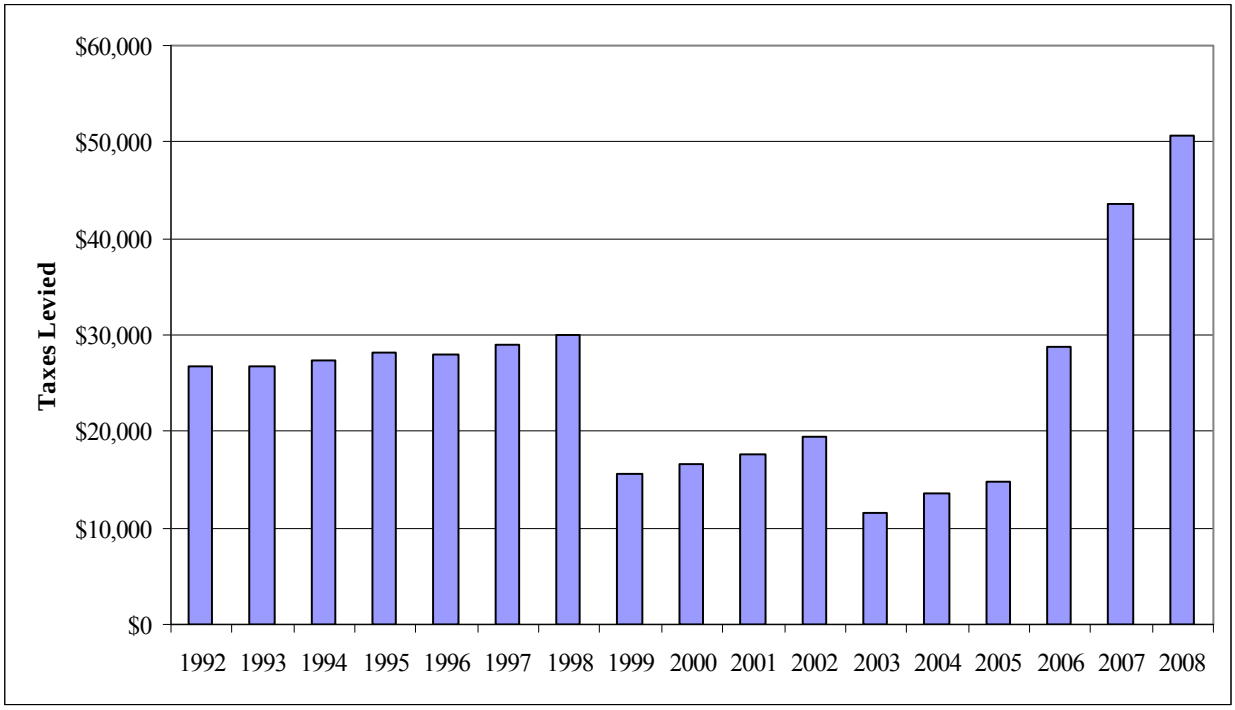

Figure 3-3 Marbleton municipal taxes levied, 1992–2008 (Wyoming Department of Revenue 2009)

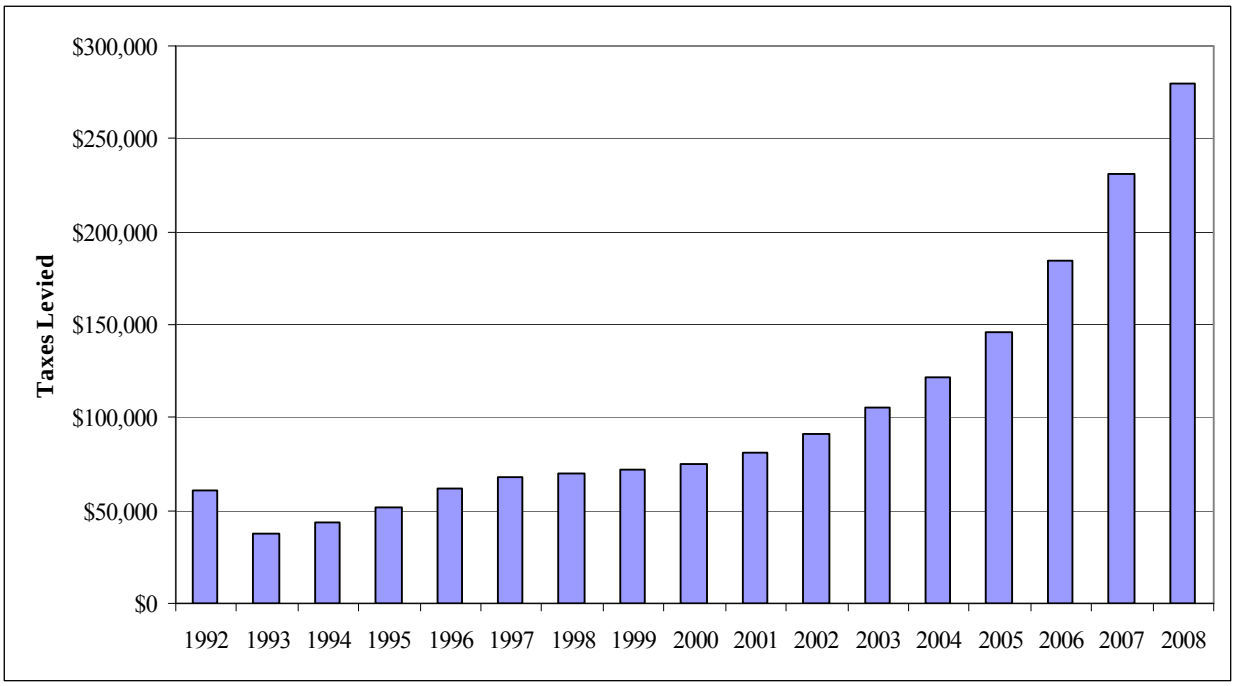

Figure 3-4 Pinedale municipal taxes levied, 1992–2008 (Wyoming Department of Revenue 2009)

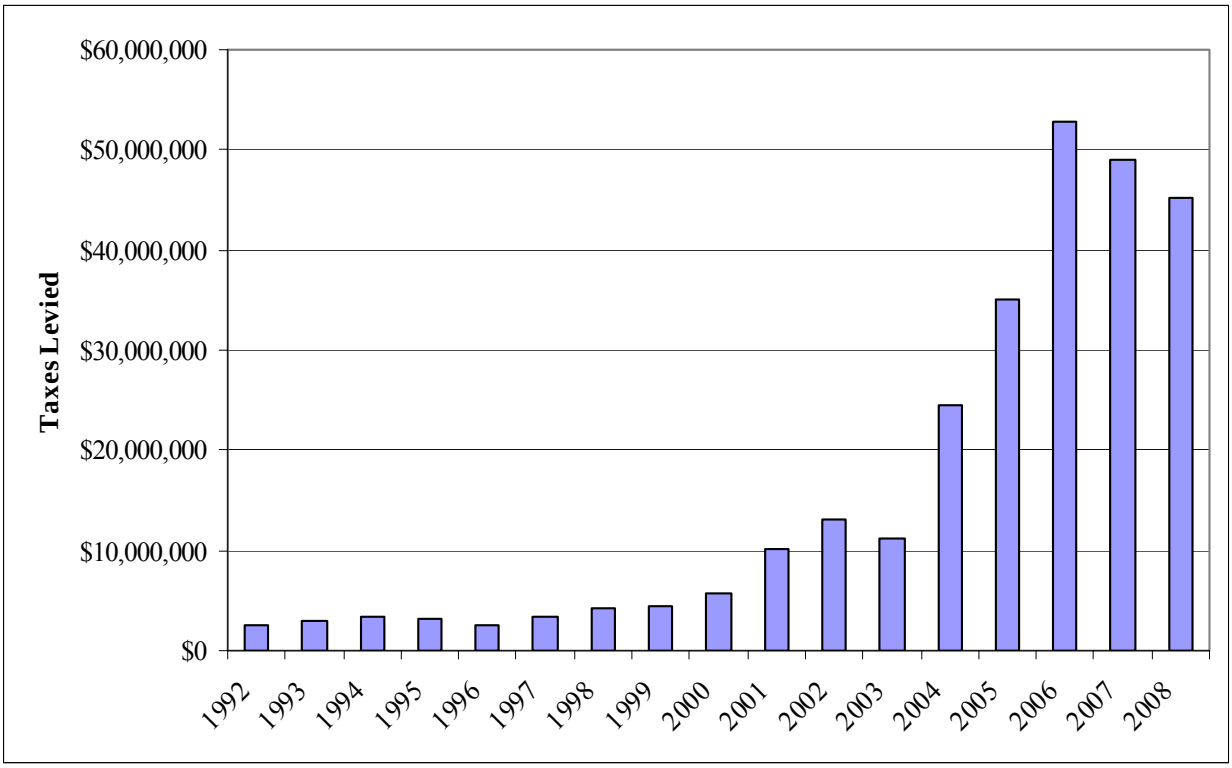

Figure 3-5 Sublette County taxes levied, 1992–2008 (Wyoming Department of Revenue 2009)

The disparity in revenue increases between Sublette County and its municipalities is more prominently displayed in Figure 3-6. Combined municipal income for Big Piney, Marbleton, and Pinedale is charted against Sublette County ad valorem income for the years 1992–2008. County revenue is easy to see in this figure, but municipal revenues are much less in comparison and are visible as small bars. Viewed in this manner, municipal income growth is insignificant compared to the increase in county ad valorem tax revenue. The reader should note that between 1992 and 2001, the energy industry had little presence in the county. Energy development activity increased beginning in 2002.

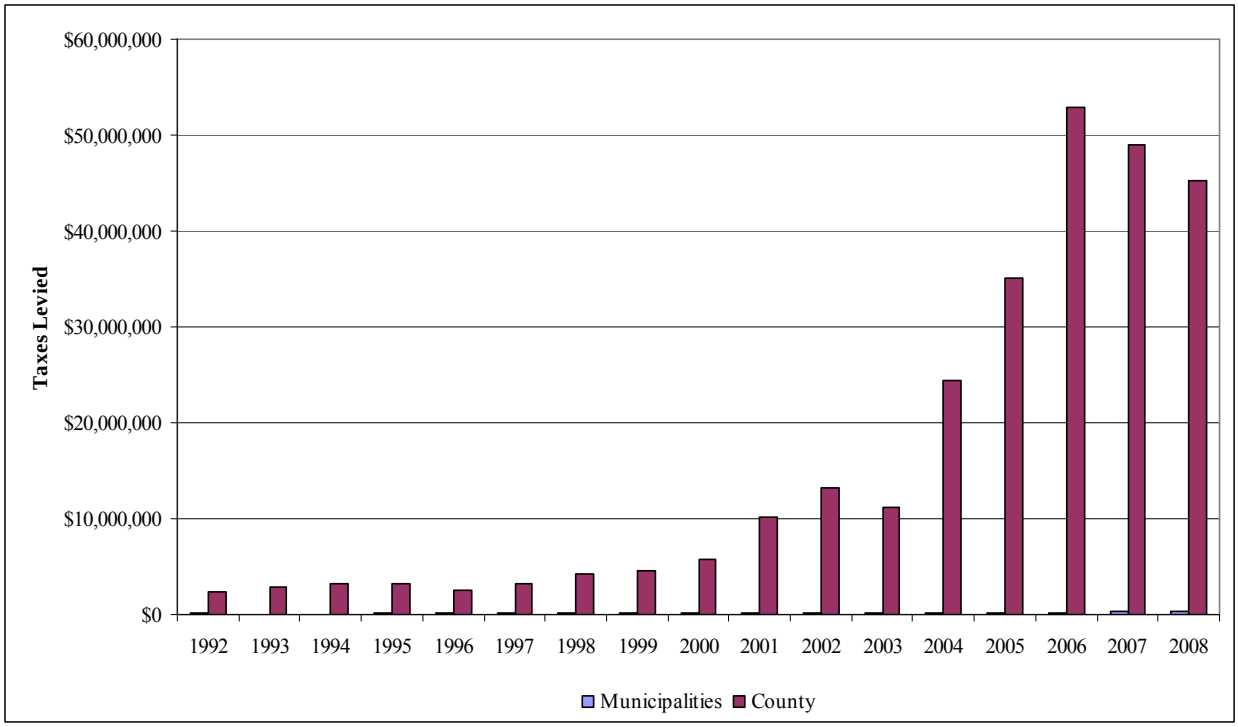

Figure 3-6 County and combined municipal taxes levied, 1992–2008 (Wyoming Department of Revenue 2009)

Clearly, the impact of oil and gas development has had little effect on municipal income to the towns of Big Piney, Marbleton, and Pinedale as the towns can only tax within the city limits and to date, oil and gas production has taken place outside of city limits. However, the towns bear the majority of impacts from the oil and gas industry and workers, notably in the infrastructure areas of streets, water lines, and sewer lines. This places the towns at a distinct financial disadvantage when addressing the effects of increased population and the accompanying strain on infrastructure and services. As discussed earlier, Marbleton gained approximately $24,000 in annual municipal revenue over a 16 year period. In practical terms, this amount of money barely covers the annual cost of wages and benefits for a single employee. Yet by the end of fiscal year 2008, Marbleton had identified over $13 million in needed infrastructure projects to address energy-related impacts. These needs and projects are more fully discussed in Chapter 4 of this report.

3.4 PAYMENT IN LIEU OF TAXES

In 1976, congress authorized federal land management agencies to share income with states and counties with the payment in lieu of taxes (PILT) program. Forty-nine percent of Wyoming is owned and managed by the Federal government and this payment helps to offset lost revenue that states and counties would otherwise receive from private land (University of Wyoming 2009). Sublette County's PILT

distributions from 2000 to 2008 are provided in Table 3-10. PILT is distributed according to the number of entitlement acres; Sublette County has 2,431,285 entitlement acres (University of Wyoming 2009).

Table 3-10 Sublette County PILT revenue, 2000–2008 (University of Wyoming 2009)

Fiscal Year	Payment per Entitlement Acre	PILT Revenue
2000	$0.11	$256,483
2001	$0.15	$371,922
2002	$0.16	$391,914
2003	$0.18	$442,097
2004	$0.19	$461,105
2005	$0.20	$481,089
2006	$0.20	$491,999
2007	$0.20	$487,682
2008	$0.20	$484,197

3.5 TAX STRUCTURES SPECIFIC TO THE ENERGY INDUSTRY

3.5.1 Federal Mineral Royalty Taxes

The state of Wyoming and its counties benefit financially from oil and gas extraction operations conducted on federal lands. Production is assessed at an average royalty rate of approximately 12.5%. The federal government retains 51% of these fees and returns the remaining 49% to the state (Etchart 2009). Wyoming distributes Federal Mineral Royalty (FMR) receipts as follows (Temte 2007):

- The first $200 million is distributed among the University of Wyoming; School Foundation Program; Highway Fund; County Roads Fund; cities and towns; cities, towns, and counties capital construction; and school account; with 1% allocated to the state General Fund.
- One-third of the remaining funds are distributed to the School Foundation Program.
- Two-thirds of the remaining funds are distributed to the state Budget Reserve Account.

While Wyoming distributes a small amount of FMR monies directly to towns within the state, counties do not receive direct FMR funding. Distribution is based on population.

The Federal Minerals Management Service is responsible for managing FMR funds. Funds are tracked several ways, including by county of origin. Table 3-11 shows the historical return of FMR taxes to Wyoming, identifying funds attributed to production in Sublette County. The percentage of total Wyoming FMR attributed to Sublette County energy extraction increased between 1996 and 2000. FMR distributions attributed to production in Sublette County from January to May 2002 are not available due to litigation issues related to the Cobell vs. Norton lawsuit regarding alleged mismanagement of Individual Indian Monies (IMM) trust accounts.

Table 3-11 FMR funds returned to Wyoming (Federal Mineral Management Service 2009)

Fiscal Year	Total FMR Distributed to Wyoming	FMR Distributed to Wyoming Attributed to Production in Sublette County	Percentage of Returned FMR Attributed to Production in Sublette County
1996	$199,332,807	$8,778,314	4.40%
1997	$239,027,489	$16,897,025	7.07%
1998	$237,179,528	$23,811,308	10.04%
1999	$231,453,518	$21,659,476	9.36%
2000	$319,648,502	$40,423,327	12.65%
2001	$448,774,537	$80,604,143	17.96%
2002	$359,386,326*	$43,746,086*	12.17%
2003	$467,266,554	$97,480,988	20.86%
2004	$564,332,554	$146,988,469	26.05%
2005	$878,524,871	$201,760,098	22.97%
2006	$1,072,479,293	$299,507,988	27.93%
2007	$925,261,906	$237,362,628	25.65%
2008	$1,270,987,013	$390,813,908	30.83%

* January to May 2002 data not available due to federal litigation issues.

Table 3-12 FMR taxes paid on production in Sublette County (Federal Mineral Management Service 2009)

Fiscal Year	FMR Taxes Paid on Production in Sublette County
1996	$17,556,329
1997	$33,794,063
1998	$47,622,547
1999	$43,318,953
2000	$80,846,655
2001	$161,208,285
2002	$87,492,172*
2003	$194,961,976
2004	$293,976,937
2005	$403,520,197
2006	$599,015,975
2007	$474,725,255
2008	$781,627,816

* January to May 2002 data not available due to federal litigation issues.

Final distribution of FMR funds to Sublette County municipalities is summarized in Table 3-13. While Sublette County operators paid over $781.6 million in FMR taxes during 2008, only $324,594, or 0.04%, was directly returned to the area. Furthermore, even though the total amount of FMR funds returned to

Wyoming in 2008 was $1,270,987,013, the combined percentage distributed to Big Piney, Pinedale, and Marbleton was 0.03%.

Table 3-13 Historical State FMR tax distributions to Big Piney, Marbleton, and Pinedale (Federal Mineral Management Service 2009; Wyoming State Treasurer's Office 2009)

Fiscal Year	Total FMR Distributed to Wyoming	FMR Distributed to Big Piney	FMR Distributed to Marbleton	FMR Distributed to Pinedale	Total County-wide FMR Distribution	Percentage of Total FMR Received
2000	$319,648,502	$65,833	$85,987	$147,232	$299,052	0.09%
2001	$448,774,537	$62,245	$85,014	$147,324	$294,583	0.07%
2002	$359,386,326	$57,118	$89,326	$160,761	$307,205	0.09%
2003	$467,266,554*	$53,180	$82,376	$147,132	$282,688	0.06%
2004	$564,332,554	$53,257	$82,512	$147,399	$283,168	0.05%
2005	$878,524,871	$54,101	$84,001	$150,319	$288,421	0.03%
2006	$1,072,479,293	$55,198	$85,938	$154,118	$295,254	0.03%
2007	$925,261,906	$57,876	$90,664	$163,385	$311,926	0.03%
2008	$1,270,987,013	$59,911	$94,255	$170,428	$324,594	0.03%

*January to May 2002 data not available due to federal litigation issues.

3.5.2 State Severance Taxes

State severance taxes are administered through the Wyoming Department of Revenue and are assessed on the current year's mineral production. Taxpayers submit monthly reports and remittance based on the taxable value of the current month's production. Minerals are taxed at 100% of their actual value, referred to as the assessed valuation, at the point where production is complete but before the extract is processed or transported. The actual value of the product varies depending on the current market price of the extract.

The state severance tax was introduced in 1969 and has fluctuated over the years, ranging from 1% to the current 6% of the taxable value. The majority of revenue is retained by the state, distributed as follows (Temte 2007):

- 2.5% to the Permanent Wyoming Mineral Trust Fund
- $155 million to counties, cities, and towns; state highway and water departments; state general fund; and county road departments
- One-third of the remaining funds to the state General Fund
- Two-thirds of the remaining funds to the state Budget Reserve Account.

Table 3-14 describes severance tax information for 2000 through 2008, which bears a strong similarity to trends seen with FMR payments. Mineral extraction in Sublette County has risen from just over 9% in

2000 to approximately 25% of 2008's statewide mineral taxable valuation. Accordingly, energy operators paid just over $250 million to the state of Wyoming in severance tax receipts during 2008.

Table 3-14 Historical Wyoming severance tax collections (Wyoming Department of Revenue 2009; Wyoming Legislative Service Office 2009)

Fiscal Year	Statewide Severance Tax Revenues	Severance Taxes Paid on Production in Sublette County	Sublette County Percentage of Mineral Taxable Valuation
2000	$275,122,976	$25,173,752	9.15%
2001	$447,973,278	$51,516,927	11.50%
2002	$299,433,961	$43,178,377	14.42%
2003	$429,126,222	$60,764,273	14.16%
2004	$563,566,928	$122,970,304	21.82%
2005	$726,656,854	$180,937,557	24.90%
2006	$1,001,076,918	$279,800,999	27.95%
2007	$863,798,920	$224,587,719	26.00%
2008	$1,093,952,011	$269,440,380	24.63%

As seen with FMR funds, severance distributions to Sublette County and its municipalities ranged from 0.02% to 0.09% of statewide revenues over the past seven years. Table 3-15 depicts state severance tax revenues and Sublette County/municipality distributions from 2000 through 2008.

Table 3-15 Severance tax distributions to Sublette County and municipalities (Wyoming Legislative Service Office 2009; Wyoming State Treasurer's Office 2009)

Fiscal Year	Statewide Severance Tax Revenues	Big Piney Distribution	Marbleton Distribution	Pinedale Distribution	Sublette County Distribution	Total Distribution	Percent of Total Revenue
2000	$275,122,976	$25,161	$35,136	$65,451	$60,952	$186,700	0.06%
2001	$447,973,278	$47,812	$71,604	$135,662	$154,042	$409,120	0.09%
2002	$299,433,961	$21,790	$38,453	$75,412	$97,554	$233,209	0.08%
2003	$429,126,222	$18,377	$32,430	$63,599	$67,414	$181,820	0.04%
2004	$563,566,928	$17,788	$31,390	$61,559	$74,857	$185,594	0.03%
2005	$726,656,854	$18,227	$32,165	$63,079	$71,902	$185,373	0.02%
2006	$1,001,076,918	$19,040	$33,599	$65,892	$72,776	$191,305	0.02%
2007	$863,798,920	$19,492	$34,398	$67,459	$73,055	$194,402	0.02%
2008	$1,093,952,011	$18,584	$32,796	$64,316	$69,314	$185,008	0.02%

3.6 SUMMARY OF REVENUE SOURCES

Big Piney, Marbleton, and Pinedale municipal revenues are generated by the taxes discussed previously in this chapter along with other taxes, fees, and revenue sources such as building permits, franchise fees, and

interest. Table 3-16, Table 3-17, and Table 3-18 show the receipts from major revenue sources as well as overall revenue from 2000 to 2008.

Table 3-16 Big Piney Major Revenue Streams and Overall Revenues (Town of Big Piney 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008; Wyoming Department of Revenue 2009; Wyoming State Treasurer's Office 2009)

Fiscal Year	Sales and Use	Taxes Levied	Severance	FMR	Overall Revenue
2000	$231,331	$12,118	$25,161	$65,833	$531,673
2001	$402,442	$12,368	$47,812	$62,245	$784,175
2002	$399,802	$13,535	$21,790	$57,118	$867,612
2003	$418,178	$15,247	$18,377	$53,180	$667,522
2004	$567,647	$16,575	$17,788	$53,257	$803,071
2005	$789,003	$19,230	$18,227	$54,101	$1,146,539
2006	$1,105,566	$31,687	$19,040	$55,198	$1,590,737
2007	$1,620,713	$39,654	$19,492	$57,876	$2,151,729
2008	$1,702,453	$31,577	$18,584	$59,911	$8,490,223

Table 3-17 Marbleton Major Revenue Streams and Overall Revenues (Town of Marbleton 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008; Wyoming Department of Revenue 2009; Wyoming State Treasurer's Office 2009)

Fiscal Year	Sales and Use	Taxes Levied	Severance	FMR	Overall Revenue
2000	$323,049	$16,599	$35,136	$85,987	$695,985
2001	$562,000	$17,679	$71,604	$85,014	$981,004
2002	$705,533	$19,373	$38,453	$89,326	$1,736,198
2003	$737,961	$11,504	$32,430	$82,376	$1,180,412
2004	$1,010,272	$13,657	$31,390	$82,512	$1,479,651
2005	$1,401,281	$14,857	$32,165	$84,001	$2,037,514
2006	$1,958,458	$28,775	$33,599	$85,938	$2,347,588
2007	$2,862,616	$43,648	$34,398	$90,664	$3,958,405
2008	$3,008,499	$50,678	$32,796	$94,255	$10,596,170

Table 3-18 Pinedale Major Revenue Streams and Overall Revenues (Town of Pinedale 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008; Wyoming Department of Revenue 2009; Wyoming State Treasurer's Office 2009)

Fiscal Year	Sales and Use	Taxes Levied	Severance	FMR	Overall Revenue
2000	$601,767	$74,756	$65,451	$147,232	NA*
2001	$1,046,881	$81,470	$135,662	$147,324	$2,515,668
2002	$1,383,628	$91,084	$75,412	$160,761	$2,818,487
2003	$1,447,224	$105,737	$63,599	$147,132	$2,476,017
2004	$2,044,204	$121,324	$61,559	$147,399	$3,409,898
2005	$2,831,643	$146,052	$63,079	$150,319	$4,599,119
2006	$3,980,769	$184,523	$65,892	$154,118	$9,455,784
2007	$5,771,071	$230,881	$67,459	$163,385	$12,295,034

Fiscal Year	Sales and Use	Taxes Levied	Severance	FMR	Overall Revenue
2008	$6,074,692	$280,115	$64,316	$170,428	$14,135,087

*Pinedale 2000 actual expenditures report is unavailable

Sublette County's tax structures are slightly different than the towns, as shown in Table 3-19.

Table 3-19 Sublette County Major Revenue Streams and Overall Revenues (Federal Mineral Management Service 2009; Sublette County 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008; Sublette County Treasurer's Department 2009; University of Wyoming 2009; Wyoming Department of Revenue 2009)

Fiscal Year	Sales and Use	Taxes Levied	Severance	PILT	Overall Revenue
2000	$1,311,557	$5,702,263	$60,952	$256,483	$11,859,212
2001	$2,281,686	$10,207,862	$154,042	$371,922	$18,083,581
2002	$3,312,084	$13,150,261	$97,554	$391,914	$25,809,350
2003	$3,507,905	$11,206,742	$67,414	$442,097	$25,154,218
2004	$4,729,477	$24,463,210	$74,857	$461,105	$37,767,643
2005	$6,614,682	$35,078,515	$71,902	$481,089	$61,180,587
2006	$9,233,764	$52,812,941	$72,776	$491,999	$93,086,497
2007	$13,499,463	$48,999,127	$73,055	$487,682	$103,099,555
2008	$14,187,892	$45,260,346	$69,314	$484,197	$96,184,513

3.7 DISTRIBUTION OF TAXES PAID BY ENERGY OPERATORS IN SUBLETTE COUNTY

Overall taxes paid by energy operators in Sublette County between 2000 and 2008 are detailed in Table 3-20. As mentioned earlier, sales and use tax breakouts by industry were not available prior to 2002. The combined payments from FMR, severance, ad valorem, and sales and use taxes totaled approximately $152 million in 2002 and increased six-fold by 2008, resulting in approximately $1.1 billion in taxes paid that year. Of these four tax levies, FMR and severance taxes accounted for nearly 90% of the cumulative payments.

Table 3-20 Summary of taxes paid by energy operators in Sublette County (Federal Mineral Management Service 2009; Wyoming State Treasurer's Office 2009; Wyoming Department of Revenue 2009; Wyoming Legislative Service Office 2009)

Fiscal Year	FMR Taxes Paid on Production in Sublette County	Severance Taxes Paid on Production in Sublette County	Sublette County Ad Valorem Taxes Paid by Energy Operators	Sales and Use Taxes Paid by Energy Operators in Sublette County	Total Tax Payments Made by Energy Operators in Sublette County
2000	$80,846,655	$25,173,752	$4,466,583	N/A	$110,486,990
2001	$161,208,285	$51,516,927	$8,840,008	N/A	$221,565,220
2002	$87,492,172*	$43,178,377	$11,649,816	$9,877,876	$152,198,241
2003	$194,961,976	$60,764,273	$9,544,782	$9,324,467	$274,595,498
2004	$293,976,937	$122,970,304	$22,559,972	$14,158,341	$453,665,554

Fiscal Year	FMR Taxes Paid on Production in Sublette County	Severance Taxes Paid on Production in Sublette County	Sublette County Ad Valorem Taxes Paid by Energy Operators	Sales and Use Taxes Paid by Energy Operators in Sublette County	Total Tax Payments Made by Energy Operators in Sublette County
2005	$403,520,197	$180,937,557	$32,812,443	$18,615,522	$635,885,719
2006	$599,015,975	$279,800,999	$49,992,730	$26,543,808	$955,353,512
2007	$474,725,255	$224,587,719	$45,485,890	$39,215,156	$784,014,020
2008	$781,627,816	$269,440,380	$40,892,723	$41,612,387	$1,133,573,306

* January to May 2002 data not available due to federal litigation issues.

Table 3-21 displays income received by Sublette County and the towns of Big Piney, Marbleton, and Pinedale from the same four revenue streams. In direct contrast to taxes paid by energy companies, ad valorem and sales and use taxes comprise over 90% of monies received by local governments in the county. Perhaps the most striking statistic is the comparison of taxes paid by operators versus the percentage of those payments that were received by local government in Sublette County as presented in Table 3-22.

Table 3-21 Summary of county-wide operator-paid taxes received in Sublette County (Wyoming Department of Revenue 2009; Wyoming State Treasurer's Office 2009)

Fiscal Year	FMR Taxes Received County-wide	Severance Taxes Received County-wide	Ad Valorem Taxes Received County-wide	Sales and Use Taxes Received County-wide	Total Taxes Received County-wide
2000	$299,052	$186,700	$4,466,583	$2,467,703	$7,420,038
2001	$294,583	$409,120	$8,840,008	$4,293,007	$13,836,718
2002	$307,205	$233,209	$11,649,816	$5,801,045	$17,991,275
2003	$282,688	$181,820	$9,544,782	$6,111,266	$16,120,556
2004	$283,168	$185,594	$22,559,972	$8,351,600	$31,380,334
2005	$288,421	$185,373	$32,812,443	$11,636,591	$44,922,828
2006	$295,254	$191,305	$49,992,730	$16,278,557	$66,757,846
2007	$311,926	$194,402	$45,485,890	$23,753,863	$69,746,081
2008	$324,594	$185,008	$40,892,723	$24,973,536	$66,375,861

Table 3-22 Comparison of taxes paid by energy operators in Sublette County to operator-generated taxes received in Sublette County (Wyoming Department of Revenue 2009; Wyoming State Treasurer's Office 2009)

Fiscal Year	Total Taxes Paid by Operators in Sublette County	Total Operator-Generated Taxes Distributed to Sublette County	Percentage of Overall Taxes Received
2000	$110,486,990	$7,420,038	6.72%
2001	$221,565,220	$13,836,718	6.24%

Fiscal Year	Total Taxes Paid by Operators in Sublette County	Total Operator-Generated Taxes Distributed to Sublette County	Percentage of Overall Taxes Received
2002	$152,198,241*	$17,991,275	11.82%
2003	$274,595,498	$16,120,556	5.87%
2004	$453,665,554	$31,380,334	6.92%
2005	$635,885,719	$44,922,828	7.06%
2006	$955,353,512	$66,757,846	6.99%
2007	$784,014,020	$69,746,081	8.90%
2008	$1,133,573,306	$66,375,861	5.86%

* January to May 2002 FMR data not available due to litigation issues.

3.8 REVENUE PROJECTIONS

The State of Wyoming closely monitors mineral production and pricing trends through its Consensus Revenue Estimating Group (CREG). CREG issues regular reports describing current trends as well as near-term projections. Of significance in CREG reports from October 2008 through May 2009 is that production projections for natural gas and crude oil through 2014 do not show large decreases. From these projections, it appears that wells currently in production will remain in that state. However, the drilling rate for new wells has dropped by more than 50% in Sublette County in recent months, as shown in Table 3-23.

Table 3-23 Rigs working per month in Sublette County (Baker Hughes 2009)

Month, Year	Rigs per Month
October 2008	47.00
November 2008	44.25
December 2008	44.50
January 2009	39.80
February 2009	37.00
March 2009	30.75
April 2009	26.00
May 2009	24.25
June 2009	21.00

In addition to CREG's projected oil and gas production, the Pinedale Anticline and Jonah fields are expected to continue growing. Table 3-24 reports the expected additional wells in the Pinedale Anticline and Jonah fields along with the current total of wells in Sublette County.

Table 3-24 Expected increase in wells from the PAPA and Jonah fields (USDI 2006; Wyoming Oil and Gas Conservation Commission 2009)

Fiscal Year	Expected Wells Drilled	Total Wells
2009	445	4,719
2010	470	5,189
2011	469	5,658
2012	395	6,053
2013	264	6,317
2014	264	6,581
2015	269	6,850
2016	288	7,138
2017	347	7,485
2018	315	7,800

Fiscal Year	Expected Wells Drilled	Total Wells
2019	430	8,230
2020	345	8,575

CREG's production projections for the state of Wyoming show steady increases through 2014, as outlined in Table 3-25. Sublette County's production is estimated at 2008's average production per well of 267,588 mcf/well times the estimated number of total wells shown in Table 3-24 (Wyoming Oil and Gas Conservation Commission 2009). The state production estimates by CREG do not include the increases in wells estimated from the PAPA and Jonah fields in Sublette County.

Table 3-25 Natural gas production projections as of May 2009 (mcf) (CREG 2009)

Fiscal Year	State Production	Sublette County Production
2009	2,540,300,000	1,262,747,772
2010	2,616,500,000	1,388,514,132
2011	2,695,000,000	1,514,012,904
2012	2,775,900,000	1,619,710,164
2013	2,859,200,000	1,690,353,396
2014	2,945,200,000	1,760,996,628

Table 3-26 Natural gas price projections (CREG 2009)

Fiscal Year	Price
2009	$2.75
2010	$3.20
2011	$3.75
2012	$4.75
2013	$5.25
2014	$5.75

Given CREG's natural gas price projections reported in Table 3-26 and the estimated production in Table 3-25, Table 3-27 reports the state and Sublette County's projected assessed value through 2014.

Table 3-27 Projected assessed value of natural gas in Wyoming and Sublette County (CREG 2009; Wyoming Oil and Gas Conservation Commission 2009)

Fiscal Year	Wyoming Assessed Value	Sublette County Assessed Value
2009	$6,985,825,000	$3,472,556,373
2010	$8,372,800,000	$4,443,245,222
2011	$10,106,250,000	$5,677,548,390
2012	$13,185,525,000	$7,693,623,279
2013	$15,010,800,000	$8,874,355,329
2014	$16,934,900,000	$10,125,730,611

4. FINANCIAL TRENDS—EXPENDITURES

4.1 HISTORICAL TRENDS - OPERATING AND CAPITAL COSTS

The central question to the socioeconomic analysis of energy-related impacts in Sublette County can be asked very simply: Do the increased revenues generated by the oil and gas industry pay for the necessary improvements to infrastructure and increase in services provided by local governments? The preceding discussion on revenue growth clearly demonstrates that local revenues have increased as a direct effect of oil and gas production in the area. This section analyzes government spending, which has also increased as a direct effect of oil and gas production.

ERG conducted a detailed evaluation of operating and capital expenditures for the towns of Big Piney, Marbleton, Pinedale, and Sublette County. For purposes of this report, operating costs are defined as recurring expenses related to the operation of local governments. Items such as salary, insurance, general office equipment, and utilities are examples of this expense category. Capital costs are considered one-time, fixed expenses incurred in the process of rendering government-provided services. Road construction, the purchase of land or buildings, construction, and acquisition of big-ticket items are all considered capital expenditures.

When analyzing energy-related trends within Sublette County, the data show that the impact of oil and gas development became evident in the early 2000s. The year 2002 often surfaces as a turning point between pre-energy and energy-impacted trends and will be used throughout this discussion as such. When possible, data between 1995 and 2002 were used to establish organic, or non-energy-impacted trends. Data from 2002 and later reflect the presence of the oil and gas industry and are categorized as energy-impacted. In addition to historical analysis, this section identifies projected trends in operating and capital expenditures.

4.1.1 Big Piney

Big Piney financial data were available from 1995 to present. Table 4-1 describes annual expenditures in Big Piney between 1995 and 2008, divided into operating and capital categories. Big Piney's annual expenses are much lower than those of Sublette County, consistent with its lower population and smaller physical size. Operating and capital costs were evenly matched for many years with the exception of 1997–2000, which showed few capital expenses.

Capital expenses did not show a significant increase until 2008, as Big Piney has had to save funds for needed capital projects. They are planning to implement many capital projects in the next few years (see Section 4.4.1).

Table 4-1 Big Piney operating and capital expenditures, 1995-2008 (Town of Big Piney 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008)

Fiscal Year	Operating Expenditures	Capital Expenditures	Total Annual Expenditures	Ratio of Operating/Capital Expenditures	Annual Percentage Growth
1995	$260,266	$12,935	$273,201	20.12	N/A
1996	$251,032	$269,121	$520,153	0.93	90.39%
1997	$226,664	$185,192	$411,856	1.22	-20.82%
1998	$224,171	$23,096	$247,267	9.71	-39.96%
1999	$260,470	$482	$260,952	540.39	5.53%
2000	$323,375	$35,847	$359,222	9.84	37.66%
2001	$346,958	$133,565	$480,523	2.60	33.77%
2002	$342,322	$16,676	$358,998	20.53	-25.29%
2003	$391,242	$40,737	$431,979	9.60	20.33%
2004	$404,627	$183,612	$588,239	2.20	36.17%
2005	$414,906	$14,461	$429,367	28.69	-27.01%
2006	$450,645	$17,468	$468,113	25.80	9.02%
2007	$460,772	$241,245	$701,967	1.91	49.96%
2008	$634,876	$1,179,540	$1,814,416	0.54	158.48%

Big Piney per capita expenditures are calculated in Table 4-2, with trend analysis shown in Figure 4-1 and Figure 4-2. Operating expenses per capita demonstrate an annual organic growth trend of $48.69 both before and after 2002.

Per capita capital expenditures showed no definite linear organic trend but increased exponentially beginning in 2006, during energy production.

Table 4-2 Big Piney operating and capital expenditures per capita, 1995–2008 (Town of Big Piney 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009; Wyoming Department of Administration and Information 2008)

Fiscal Year	Big Piney Population	Operating Expenditures per Capita	Capital Expenditures per Capita
1995	449	$580	$29
1996	442	$568	$609
1997	434	$522	$427
1998	427	$525	$54
1999	417	$625	$1
2000	408	$793	$88
2001	404	$859	$331
2002	421	$813	$40
2003	431	$908	$95

Fiscal Year	Big Piney Population	Operating Expenditures per Capita	Capital Expenditures per Capita
2004	438	$924	$419
2005	451	$920	$32
2006	453	$995	$39
2007	476	$968	$507
2008	501	$1,267	$2,355

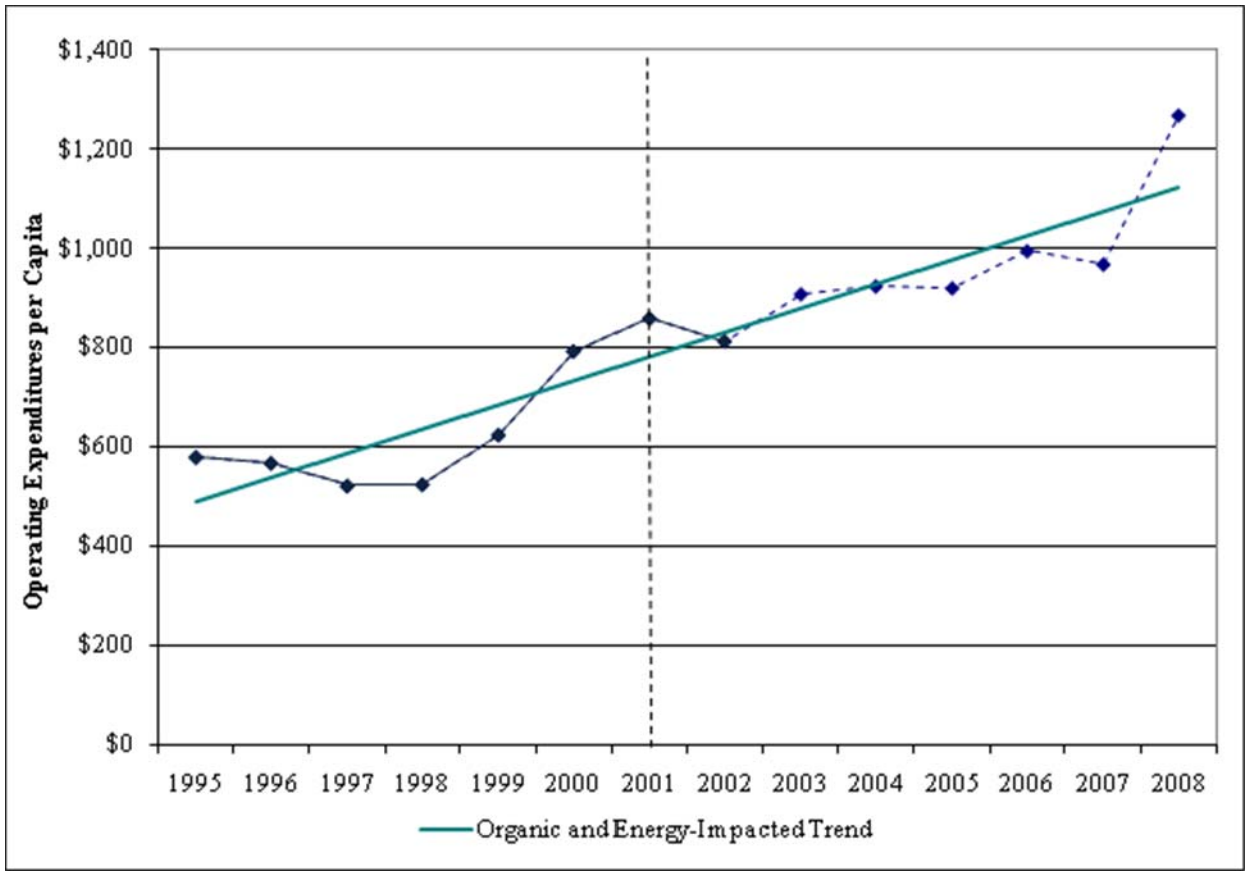

Figure 4-1 Big Piney operating expenditures per capita, 1995–2008 (Town of Big Piney 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009; Wyoming Department of Administration and Information 2008)

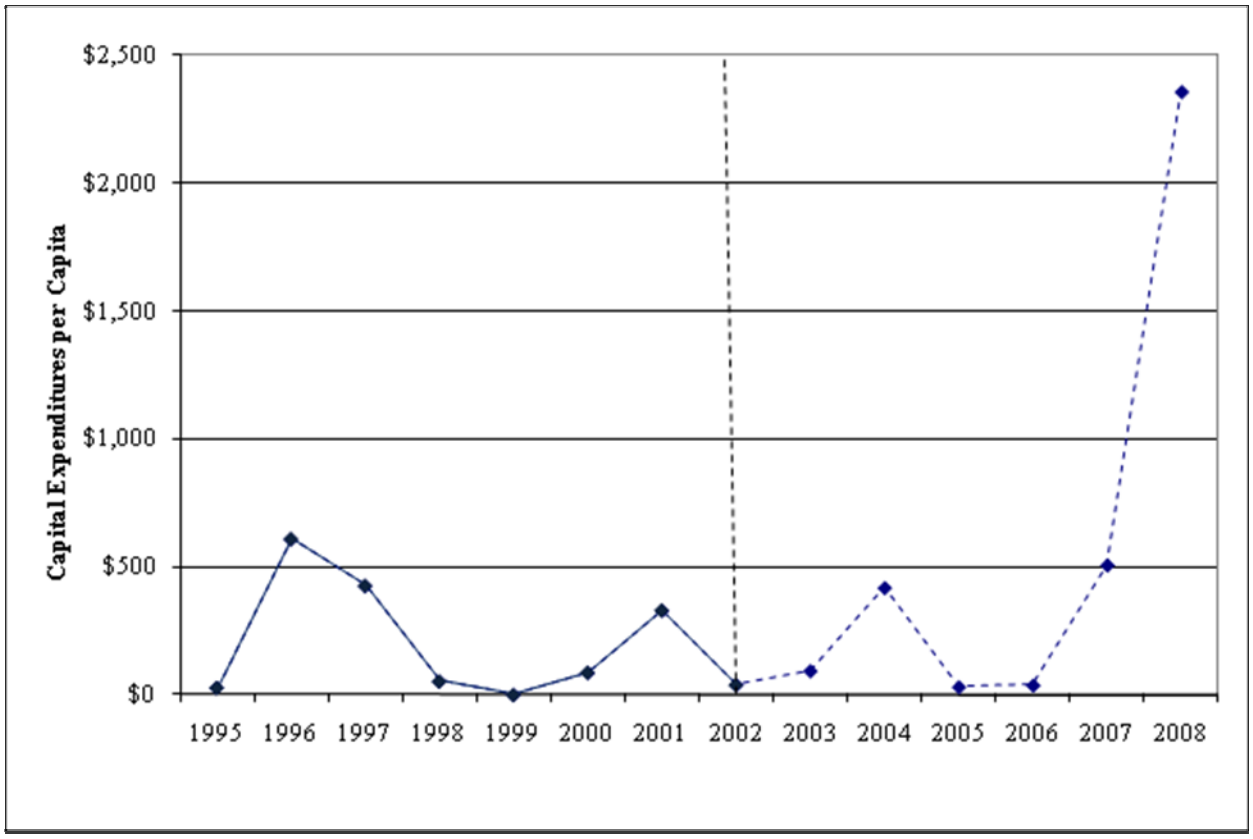

Figure 4-2 Big Piney capital expenditures per capita, 1995–2008 (Town of Big Piney 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009; Wyoming Department of Administration and Information 2008)

4.1.2 Marbleton

Financial data for the town of Marbleton were available from 1995 to present. Table 4-3 describes expenditures in the town from 1995 to 2008, split into operating and capital categories. Annual expenses in Marbleton are similar to those in Big Piney and grew from $437,646 in 1995 to $2,625,007 in 2008. Operating costs outweighed capital costs until 2002, when capital items predominated except for 2003 and 2004. Operating expenses between 1995 and 2008 ranged from $300,000 to $850,000. Capital expenditures during this period increased from $43,143 to $1,885,883.

Table 4-3 Marbleton operating and capital expenditures, 1995–2008 (Town of Marbleton 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

Fiscal Year	Operating Expenditures	Capital Expenditures	Total Annual Expenditures	Ratio of Operating/Capital Expenditures	Annual Growth–Expenditures
1995	$394,503	$43,143	$437,646	9.14	N/A
1996	$359,540	$91,069	$450,609	3.95	2.96%
1997	$370,938	$136,912	$507,850	2.71	12.70%
1998	$333,985	$133,239	$467,224	2.51	-8.00%
1999	$349,984	$108,493	$458,477	3.23	-1.87%
2000	$400,134	$97,700	$497,834	4.10	8.58%
2001	$411,382	$112,174	$523,556	3.67	5.17%
2002	$514,696	$632,812	$1,147,508	0.81	119.18%
2003	$512,316	$232,191	$744,507	2.21	-35.12%
2004	$546,464	$190,056	$736,520	2.88	-1.07%
2005	$716,286	$817,269	$1,533,555	0.88	108.22%
2006	$623,444	$2,268,744	$2,892,188	0.27	88.59%
2007	$817,369	$2,115,696	$2,933,065	0.39	1.41%
2008	$739,124	$1,885,883	$2,625,007	0.39	-10.50%

Marbleton per capita expenditures are listed in Table 4-4, with trend analysis shown in Figure 4-3 and Figure 4-4. Organic per capita operating expenses showed a linear trend of $15.87 annually. Energy-impacted growth demonstrated a larger per capita trend of $28.73 annually.

Per capita capital expenditures demonstrated a linear organic trend of $65.10 annually, then increased exponentially after 2002 (Figure 4-4). Marbleton's energy-impacted expenditures showed no definite linear organic trend but increased exponentially with some variance after the start of energy production.

Table 4-4 Marbleton operating and capital expenditures per capita, 1995–2008 (Town of Marbleton 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009; Wyoming Department of Administration and Information 2008)

Fiscal Year	Marbleton Population	Operating Expenditures per Capita	Capital Expenditures per Capita
1995	702	$567	$62
1996	696	$512	$130
1997	707	$525	$194
1998	713	$468	$187
1999	715	$489	$152
2000	720	$556	$136
2001	712	$578	$158
2002	742	$694	$853
2003	762	$672	$305

Fiscal Year	Marbleton Population	Operating Expenditures per Capita	Capital Expenditures per Capita
2004	780	$701	$224
2005	806	$889	$1,014
2006	848	$735	$2,675
2007	919	$889	$2,302
2008	967	$764	$1,950

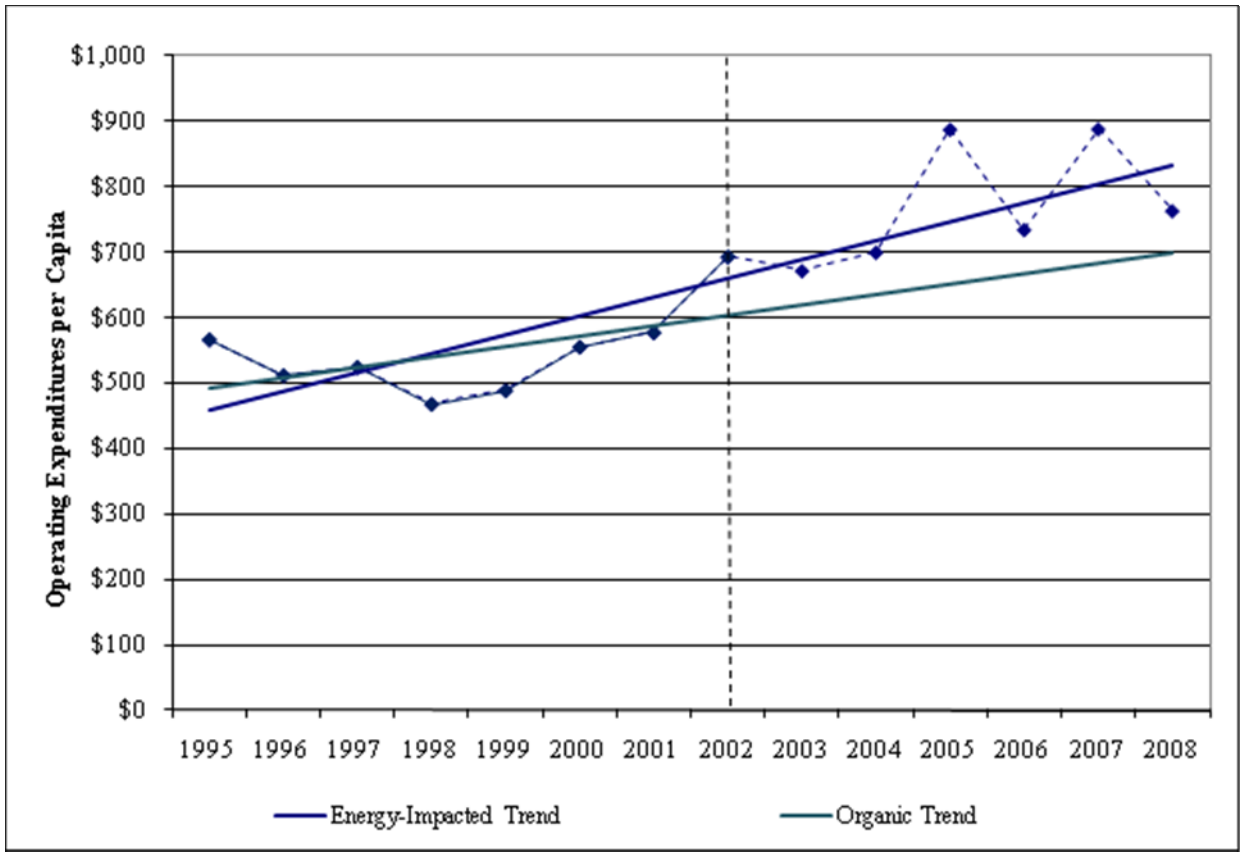

Figure 4-3 Marbleton operating expenditures per capita, 1995–2008 (Town of Marbleton 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

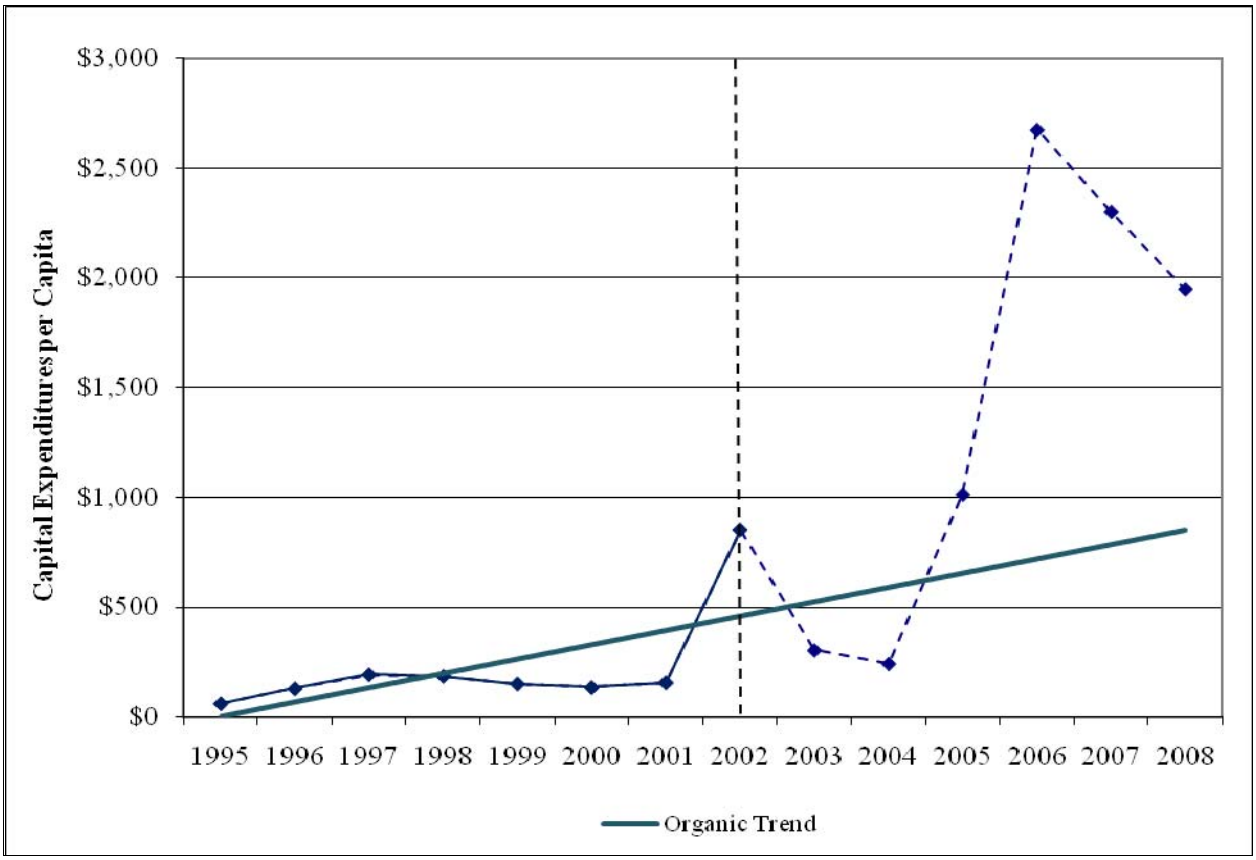

Figure 4-4 Marbleton capital expenditures per capita, 1995–2008 (Town of Marbleton 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

4.1.3 Pinedale

Pinedale provided financial data from 1995 to present. Table 4-5 describes expenditures in the town between 1995 and 2008, divided into operating and capital categories. As the largest town in Sublette County, Pinedale's expenses are higher than both Marbleton and Big Piney. Although Pinedale's operating to capital expenditures ratio is quite variable, they do show a higher ratio of capital expenditures in recent years with energy development. Pinedale's figures for the year 2000 are budget estimates rather than actual expenditures as their 2000 fiscal report with actual expenditures was unavailable.

Table 4-5 Pinedale operating and capital expenditures, 1995–2008 (Town of Pinedale 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

Fiscal Year	Operating Expenditures	Capital Expenditures	Total Annual Expenditures	Ratio of Operating/Capital Expenditures	Annual Growth–Expenditures
1995	$753,516	$917,647	$1,671,163	0.82	N/A
1996	$625,208	$399,258	$1,024,466	1.57	-38.70%
1997	$768,478	$192,026	$960,504	4.00	-6.24%
1998	$861,174	$357,845	$1,219,019	2.41	26.91%
1999	$876,205	$3,165,750	$4,041,955	0.28	231.57%
2000	$1,272,165	$385,293	$1,657,458	3.30	-58.99%
2001	$1,774,066	$731,028	$2,505,094	2.43	51.14%
2002	$2,007,011	$413,501	$2,420,512	4.85	-3.38%
2003	$1,074,319	$1,010,707	$2,085,026	1.06	-13.86%
2004	$1,435,522	$963,902	$2,399,424	1.49	15.08%
2005	$1,665,021	$1,479,400	$3,144,421	1.13	31.05%
2006	$1,360,172	$6,273,440	$7,633,612	0.22	142.77%
2007	$1,737,371	$4,441,054	$6,178,425	0.39	-19.06%
2008	$2,516,288	$3,715,214	$6,231,502	0.68	0.86%

Per capita expenditures are presented in Table 4-6, Figure 4-5, and Figure 4-6. Pinedale's operating expenditures per capita did not show enough of a pattern in these few years to explore a linear trend, but appear to have slightly increased on average since energy development.

Pinedale's capital expenditures per capita showed increased capital expenditures since energy development. Pre-2002 expenditures showed a linear trend of $9.17. The trend increased to $134.45 with energy development.

Table 4-6 Pinedale operating and capital expenditures per capita, 1995–2008 (Town of Pinedale 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009; Wyoming Department of Administration and Information 2008)

Year	Pinedale Population	Operating Expenditures per Capita	Capital Expenditures per Capita
1995	1,330	$567	$690
1996	1,348	$464	$296
1997	1,365	$563	$141
1998	1,383	$623	$259
1999	1,395	$628	$2,269
2000	1,402	$907	$275
2001	1,383	$1,283	$529
2002	1,433	$1,401	$289

Year	Pinedale Population	Operating Expenditures per Capita	Capital Expenditures per Capita
2003	1,479	$726	$683
2004	1,545	$929	$624
2005	1,647	$1,011	$898
2006	1,818	$748	$3,451
2007	2,043	$850	$2,174
2008	2,150	$1,170	$1,728

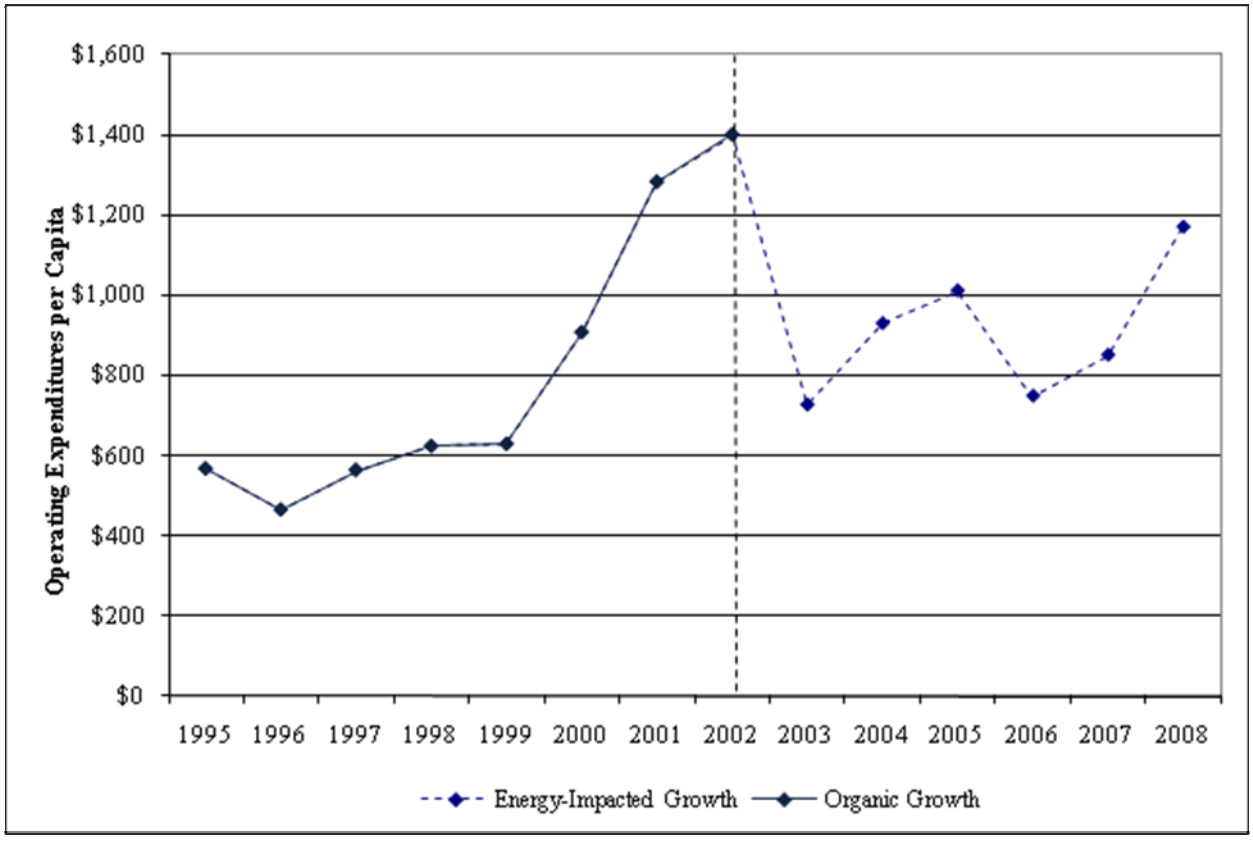

Figure 4-5 Pinedale operating expenditures per capita, 1995–2008 (Town of Pinedale 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

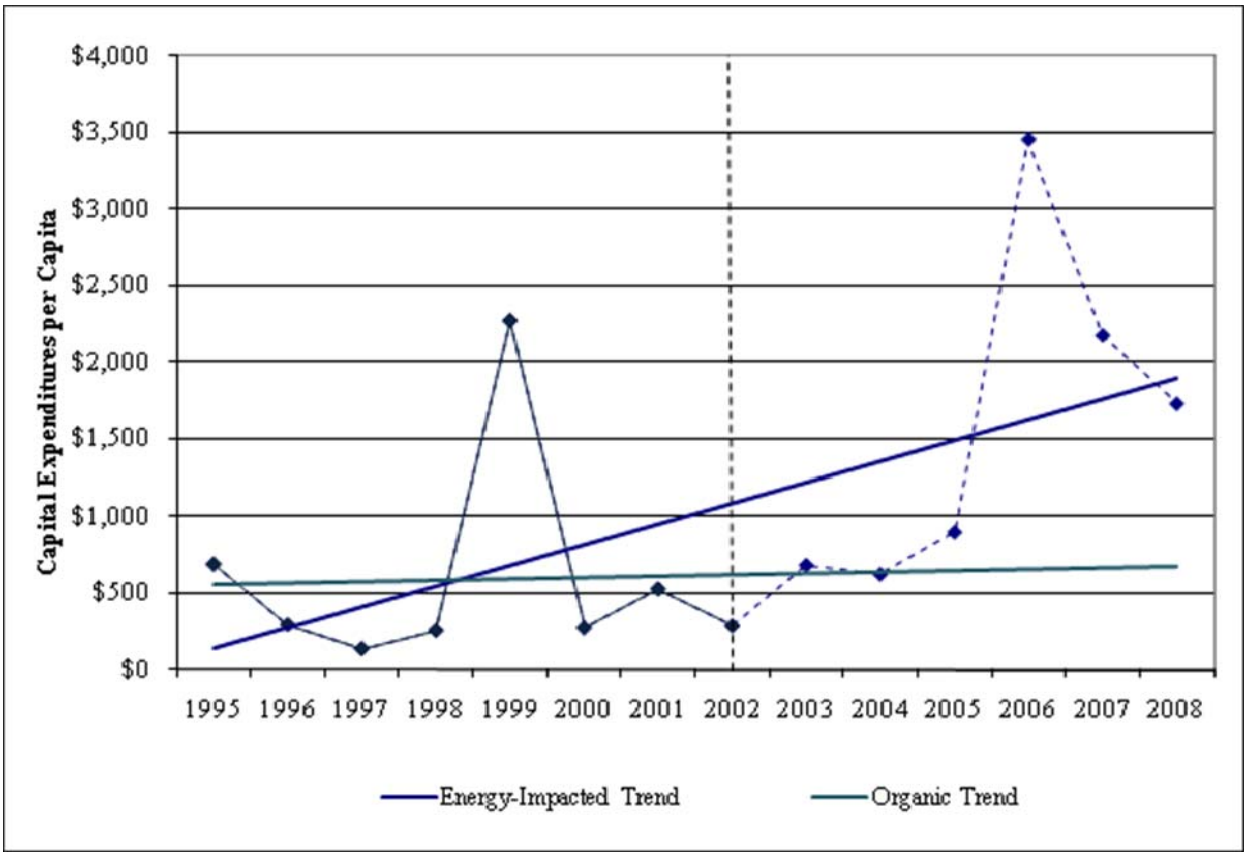

Figure 4-6 Pinedale capital expenditures per capita, 1995–2008 (Town of Pinedale 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

4.1.4 Sublette County

Financial data from Sublette County were available from 1999 to present. Table 4-5 describes Sublette County's annual expenditures between 1999 and 2008 divided into operating and capital categories. Prior to 2002 annual operating expenditures exceeded capital expenditures, as indicated by the ratio of operating/capital expenditures. (Values greater than one indicate a greater portion of operating expenditures, values near one indicate that operating and capital expenditures are similar, and values less than one indicate more capital costs.) This is the expected pattern for organic growth; a "normal" environment will have relatively few large purchases or projects.

The year 2002 marked a shift in the ratio between operating and capital costs, and from this point forward capital items consumed a larger portion of overall expenses, except in 2004 when they were approximately equal.

Table 4-7 Sublette County operating and capital expenditures, 1999–2008 (Sublette County 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

Fiscal Year	Operating Expenditures	Capital Expenditures	Total Annual Expenditures	Ratio of Operating/Capital Expenditures	Annual Growth–Expenses
1999	$4,467,286	$1,262,258	$5,729,544	3.54	N/A
2000	$4,993,938	$2,290,538	$7,284,476	2.18	27.14%
2001	$5,234,284	$1,900,615	$7,134,899	2.75	-2.05%
2002	$6,491,810	$4,517,073	$11,008,883	1.44	54.30%
2003	$7,144,194	$8,733,297	$15,877,491	0.82	44.22%
2004	$9,692,066	$9,150,794	$18,842,860	1.06	18.68%
2005	$11,160,937	$12,508,948	$23,669,885	0.89	25.62%
2006	$15,750,596	$9,002,775	$24,753,371	1.75	4.58%
2007	$20,499,267	$23,752,524	$44,251,791	0.86	78.77%
2008	$23,663,740	$29,464,673	$53,128,413	0.80	20.06%

Sublette County per capita expenditures are calculated in Table 4-8, with trend analyses shown in Figure 4-7 and Figure 4-8. The trend from 1999 to 2002 was a linear annual growth of $91.4 in operating expenditures per capita. Capital expenditures per capita over the same period also showed a positive linear trend of $149.20.

From 2002 to 2008, Sublette County's annual operating expenditures per capita showed a positive linear trend of $238.28. Annual capital expenditures per capita also showed a positive linear trend of $339.31.

Table 4-8 Sublette County operating and capital expenditures per capita, 1999–2008 (Sublette County 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009; Wyoming Department of Administration and Information 2008)

Fiscal Year	County Population	Operating Expenditures per Capita	Capital Expenditures per Capita
1999	5,835	$766	$216
2000	5,952	$844	$387
2001	5,936	$888	$322
2002	6,218	$1,056	$735
2003	6,352	$1,131	$1,383
2004	6,650	$1,474	$1,392
2005	6,926	$1,622	$1,818
2006	7,359	$2,175	$1,243
2007	7,925	$2,587	$2,997
2008	8,340	$2,837	$3,533

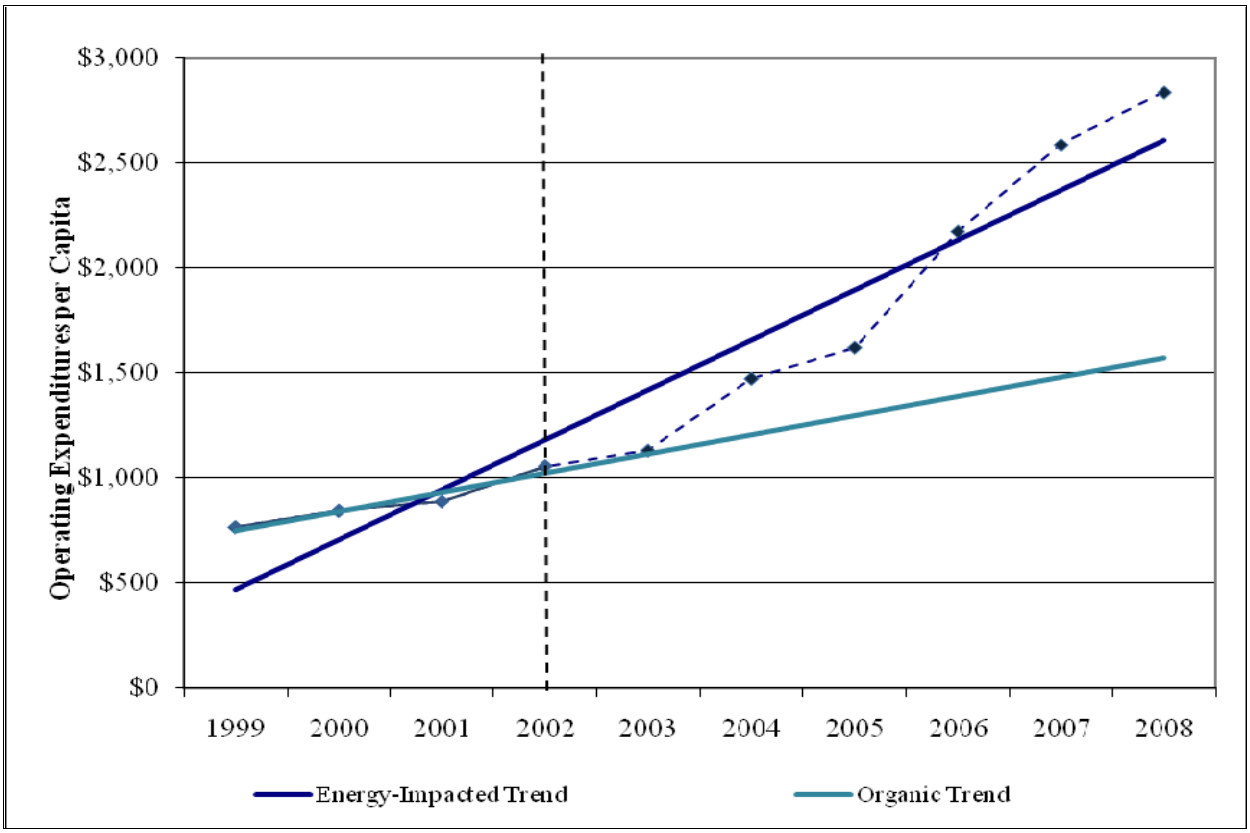

Figure 4-7 Sublette County operating expenditures per capita, 1999-2008 (Sublette County 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

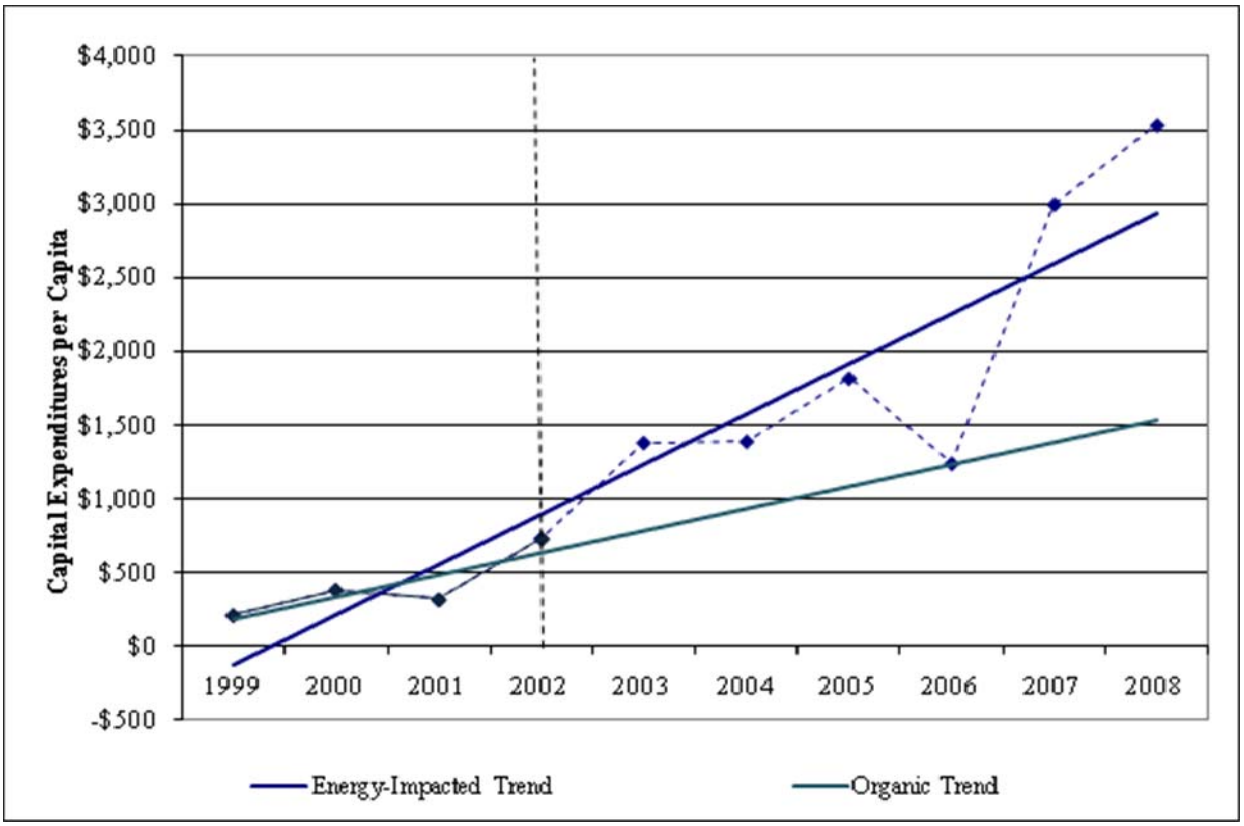

Figure 4-8 Sublette County capital expenditures per capita, 1999-2008 (Sublette County 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

4.1.5 Summary – Historical Expenditures

Table 4-9 and Table 4-10 provide summaries of Sublette County's average operating and capital expenditures per capita with and without the presence of oil and gas development. Between 1995 and the early 2000s, annual expenses were directed toward recurring operational items. Capital purchases took place during this period but were the exception rather than the rule. After energy industry activity picked up in the early 2000s, capital expenditures were much more common.

Table 4-9 Average operating expenditures per capita pre- and through energy development (Sublette County, Town of Pinedale, Town of Marbleton, Town of Big Piney 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

County/ Municipality	Pre-Development Operating Expenses	Operating Expenses Through Development	Increase
Town of Big Piney	$639	$805	$166
Town of Marbleton	$528	$646	$118
Town of Pinedale	$719	$848	$129

County/ Municipality	Pre-Development Operating Expenses	Operating Expenses Through Development	Increase
Sublette County	$889	$1,538	$649
Overall average	**$694**	**$959**	**$265**

Table 4-10 Average capital expenditures per capita pre- and through energy development (Sublette County, Town of Pinedale, Town of Marbleton, Town of Big Piney 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)

County/Municipality	Pre-Development Capital Expenses	Capital Expenses Through Development	Change
Town of Big Piney	$220	$359	$139
Town of Marbleton	$146	$739	$593
Town of Pinedale	$637	$1,022	$385
Sublette County	$415	$1,403	$988
Overall Average	**$355**	**$881**	**$526**

The contrast between organic and energy-impacted capital costs is striking, particularly for the towns. Considerable amounts of money, approximately $60.6 million, have been spent recently on capital projects within the county limits, as noted in Table 4-11. However, local governments still have large lists of needed capital projects waiting for funding. Table 4-21, located at the end of this chapter, identifies over $160 million in needed yet unfunded infrastructure projects critical to the health and safety of those who work and live in Sublette County.

For example, the town of Big Piney has obtained engineering estimates to replace the town's aging sewer lines at a cost of approximately $9 million. Big Piney's major revenue stream is sales and use tax, which generated $1.7 million in 2008. If the town is able to set aside even half of those revenues annually, it will take over ten years to accumulate funding for the sewer project. Similar scenarios exist for all jurisdictions within Sublette County.

Table 4-11 Completed capital projects in Sublette County, 2005–2008 (Sublette County, Town of Pinedale, Town of Marbleton, Town of Big Piney, 2005, 2006, 2007, 2008, 2009)

Project	2005	2006	2007	2008
Big Piney				
North/Beach/Norris Street Paving	$1,093	$7,712	$87,257	$138,624
Land Acquisition-Lesley Lane			$40,000	
Paving of Lesley Lane			$40,000	$123,725
Sewer Line			$27,012	
Town Hall Remodeling				$6,940
Park Improvement Project-Piney Drive				$2,874
Quealy Ave. Paving				$59,814
Dodge Street Repair				$40,228

Project	2005	2006	2007	2008
Removal of Well House #7				$5,858
Landfill #1 & #2 Monitoring				$4,092
Subtotal	$1,093	$7,712	$194,269	$382,155
Marbleton				
Capital Expense Well	$70		$119,951	$161,097
Sewer Project		$5,738	$5,080	$89,565
Street Infrastructure	$596,243		$1,008,816	$899,250
Senior Citizen	$3,500	$3,500	$5,000	$6,000
New Town Hall	$167,296	$2,085,542	$789,859	$7,697
Subtotal	$767,109	$2,094,780	$1,928,706	$1,163,609
Pinedale				
Tyler Avenue, Water Fund		$210,828		
Tyler Avenue Water, County-Funded	$111,217	$711,805	$2,202,305	
Sublette Avenue, Water Fund		$156,088	$10,202	
Sewer Lagoon, Sewer Fund		$4,134,654	$271,602	
Sewer Lagoon, County-Funded	$176,978		$393,669	
Capital Improvement Sublette, Water Fund		$189,798	$534,295	$290
Tyler Avenue, Sewer Fund		$8,758	$2,160	
Tyler Avenue Sewer, County-Funded				
Sublette Avenue, Sewer Fund	$271,730	$290,135	$134,738	
West Pinedale Main, Sewer Fund				$431,724
South Main Sewerline, Sewer Fund				$1,040,023
Paved Street Maintenance, General Fund	$32,750	$70,762	$10,402	$6,314
Unpaved Street Maintenance, General Fund	$5,322	$1,238	$250	$78
Capital Improvement Curbs/Gutters, General Fund	$89,250	$224,350		
Subtotal	$687,247	$5,998,416	$3,559,623	$1,478,429
Sublette County				
Retirement Center Land Purchase	$1,750,000			
Senior Citizen Facilities	$1,288,078	$155,280	$127,309	$792,202
Big Piney Recreation Center, including Nichols Land		$231,204		$1,159,841
Library Addition		$27,036	$320,485	$2,315,249
Pinedale Clinic			$2,710,944	$5,560,826
Marbleton Clinic			$668,684	$3,325,964
Pinedale Ambulance Barn			$1,090,180	$423,429
Marbleton Projects, Clinic Land Purchase			$1,250,000	
Marbleton Area Sewer and Water				$32,604
Marbleton Airport Hangar			$19,712	$2,740,371
Marbleton Ambulance Barn				$46,150
Tyler Street		$3,000,000		
Mesa Road				$2,500,000
Sand Draw Ambulance Barn			$664,966	$543,340
Visitor Center			$937,690	

Project	2005	2006	2007	2008
Road and Bridge Shop		$3,300,000		
Facilities Maintenance Building				$3,200,000
Land from Doyles, Pinedale				$700,350
Land from Richardson, Pinedale				$1,319,500
Search and Rescue				$132,968
Subtotal	$3,038,078	$6,713,520	$7,789,970	$24,792,794
Total	**$4,493,527**	**$14,814,428**	**$13,472,568**	**$27,816,987**
Cumulative Total	**$60,597,510**			

4.2 MUNICIPALITY QUESTIONNAIRE; PROJECTED EXPENDITURES; PERSONNEL AND OPERATING BUDGETS

4.2.1 Survey Instrument

In 2008, ERG administered a survey to Big Piney, Marbleton, Pinedale, and Sublette County regarding projected expenditures through 2018, the estimated peak employment year. A compilation of the questionnaire results and follow-up planning meetings follows.

4.2.2 Big Piney

The town of Big Piney also expects budgetary increases through 2018. Big Piney has not made estimates for number of personnel needed during this timeframe (Ecosystem Research Group 2008b).

4.2.3 Marbleton

The town of Marbleton does not anticipate hiring additional staff between 2009 and 2018. However, they expect budgetary growth, estimating their FY2010 budget at $11 million, FY2011 budget at $12 million, and FY2012 budget at $13 million (Ecosystem Research Group 2008b).

4.2.4 Pinedale

Like Sublette County, the town of Pinedale returned their questionnaires by department including the Clerk's Office, Mayor's Office, Planning and Zoning, Engineering, Municipal Court, and Public Works. Anticipated staff increases by department are shown in Table 4-12. In December 2008, Pinedale had 21 employees (Hogarty 2009).

Table 4-12 Pinedale anticipated staff increases, 2008–2018 (Ecosystem Research Group 2008b)

Department	Staff Increase 2008-2018
Planning and Zoning	0.5
Engineering	2.0
Municipal Court	1.0
Public Works	1.5
Total	**5.0**

4.2.5 Sublette County

Sublette County's questionnaires were distributed to all county departments, including the County Assessor, County Commissioners, Drug Court, Emergency Management, GIS, Road and Bridge, Treasury, Zoning and Planning, County Clerk, County Engineer, Elections, Environmental Health, Public Health, County Sheriff and Law Enforcement, Waste Management, and the Clerk of Court. Responses indicate that many departments expect continued growth until 2018. Total anticipated staff increases from 2008 to 2018 are shown in Table 4-13. Departments which did not expect staff increases were not included in the table. Operating budgets are expected to increase as well, in tandem with additional staff and population growth.

Table 4-13 Sublette County anticipated staff increases, 2008–2018 (Ecosystem Research Group 2008b)

Department	Staff Increase 2008-2018
County Assessor	1.0
Drug Court	2.0
Road and Bridge	10.0
Treasury	2.0
Zoning and Planning	1.0
County Clerk	1.0
Environmental Health	0.5
Public Health	2.0
County Sheriff/Law Enforcement	10.0
Waste Management	4.0
Clerk of Court	4.0
Total	**37.5**

4.3 CUMULATIVE PROJECTED PERSONNEL AND OPERATING BUDGETS

Using the linear trend of increases in operational expenditures per capita through oil and gas development, Sublette County and its municipalities' operating budgets are estimated through 2018 below.

Table 4-14 Estimated operating expenditures, 2009–2018 (United States Census 2009; Town of Big Piney, Town of Marbleton, Town of Pinedale, Sublette County 2009)

Fiscal Year	Big Piney	Marbleton	Pinedale	Sublette County
2009	$583,976	$875,601	$3,850,946	$20,349,263
2010	$619,664	$973,446	$4,211,307	$22,922,249
2011	$656,722	$1,077,526	$4,592,531	$25,668,192
2012	$695,174	$1,189,207	$5,000,165	$28,620,792
2013	$735,777	$1,296,414	$5,383,693	$31,488,302
2014	$771,177	$1,409,429	$5,786,742	$34,516,584
2015	$807,915	$1,529,802	$6,215,437	$37,744,560
2016	$846,771	$1,655,045	$6,659,444	$41,111,792
2017	$886,265	$1,788,132	$7,130,627	$44,692,644
2018	$927,942	$1,929,429	$7,630,136	$48,497,560

4.4 MUNICIPALITY QUESTIONNAIRE—PROJECTED CAPITAL EXPENDITURES

4.4.1 Big Piney

In their questionnaire, Big Piney estimated the cost of their paving and infrastructure projects at $9.3 million between 2008 and 2018. A detailed list of their projected expenditures outlined in the follow-up meetings is included in Table 4-15.

Table 4-15 Big Piney upcoming infrastructure projects (Arthur 2008; Hurd 2008)

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
1st	Landfill groundwater monitoring	$125,000	Ongoing	Wyo Star savings	$0	$125,000
1st	Black Avenue	$856,650	2009	Town	$50,000	$806,650
1st	Mickelson Street	$520,525	2009	Town	$50,000	$470,525
1st	Noble Street	$323,375	2009	Town	$50,000	$273,375
1st	Fish Street	$320,688	2009	Town	$50,000	$270,688
1st	P.L. Lane	$634,325	2009	Town	$50,000	$584,325
1st	Miller Lane	$283,500	2009	Town	$50,000	$233,500
1st	Circle Way	$263,875	2009	Town	$50,000	$213,875
1st	Beck Street	$132,650	2009	Town	$50,000	$82,650
1st	Engineering	$767,185	2009	Town	$0	$767,185

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
1st	Highway 189	$361,128	2010	SLIB/Town	$0	$361,128
1st	Piney Drive	$486,030	2010	SLIB/Town	$0	$486,030
1st	Smith Avenue	$1,003,975	2010	SLIB/Town	$0	$1,003,975
1st	Fish Street	$101,750	2010	SLIB/Town	$0	$101,750
1st	Noble Street	$313,943	2010	SLIB/Town	$0	$313,943
1st	Mickelson Street	$363,005	2010	SLIB/Town	$0	$363,005
1st	Engineering	$521,801	2010	SLIB/Town	$0	$521,801
1st	Piney Drive	$632,900	2011	SLIB/Town	$0	$632,900
1st	Milleg Lane	$893,400	2011	SLIB/Town	$0	$893,400
1st	Engineering	$351,049	2011	SLIB/Town	$0	$351,049
	Total	**$9,256,754**			**$400,000**	**$8,856,754**

4.4.2 Marbleton

In the questionnaire, Marbleton listed their capital projects for 2009–2018 as a sewer line, new sewer facility, new water tower, truck, and lawn equipment. A detailed list of Marbleton's projected infrastructure expenditures outlined in follow-up meetings is included in Table 4-16.

Table 4-16 Marbleton upcoming infrastructure projects (Murphy 2008)

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
1st	Well House #7 Fluoride Treatment	$639,243	2009	Town	$48,596	$590,647
1st	Aerated Lagoon System with Power	$4,600,000	2009-10	Town	$2,679,582	$1,920,418
1st	Wind Turbines for Aerated Lagoon System	$500,000	2009-10	Town	$172,619	$327,381
1st	50,000 Gallon Water Tower Replacement	$979,800	2010-11	Town	$200,000	$779,800
2nd	Main Water Line East to West	$497,000	2009-10	Town	$100,000	$397,000
2nd	South Sewer Line Extension	$229,000	2009-10	Town	$100,000	$129,000
2nd	Alsade Drive Curb, Gutter, and Paving	$413,406	2009-10	Town	$50,000	$363,406

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
3rd	Eiden Subdivision Curb, Gutter, and Paving	$2,685,894	2011-12	Town	$150,000	$2,535,894
4th	Phase III of the Marbleton Street Project Sidewalks	$2,735,512	2012-13	Town	$200,000	$2,535,512
	Total	**$13,279,855**			**$3,700,797**	**$9,579,058**

4.4.3 Pinedale

In the questionnaire, Pinedale identified spatial expansion for the Clerk's Office, Planning and Zoning Department, and Municipal Court along with some Publics Works projects summarized in Table 4-17.

Table 4-17 Pinedale capital needs from questionnaire (Ecosystem Research Group 2008b)

Department	Capital Items	Spatial Expansion
Clerk's Office	None	$115-150,000 additional office space
Planning and Zoning	GIS database	County maintenance facility, 3 new parks of 230 acres added to town maintenance
Municipal Court	None	Facility expansion of $50–100,000
Public Works	SCADA water treatment system, water treatment facility and upgrades, and sludge removal and re-line	None

A series of meetings detailed Pinedale's sewer, water treatment, street, and facility needs through 2014. The complete list is included in Table 4-18.

Table 4-18 Pinedale upcoming infrastructure projects (Ninnie 2008)

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
1st	Phase V Sewer	$7,491,037	2010	Sales/Use tax	$2,000,000	$5,491,037
1st	Phase VI Sewer	$8,924,640	2010	Sales/Use tax	$0	$8,924,640
1st	EPA-Mandated Water Treatment	$3,800,000	2010	None	$0	$3,800,000
2nd	Street Repair/Improvements	$6,602,000	2010	None	$0	$6,602,000
2nd	Street Repair/Improvements	$5,182,000	2011	None	$0	$5,182,000
2nd	Phase VII Sewer	$7,486,384	2011	Sales/Use tax	$2,000,000	$5,486,384

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
2nd	Street Repair/Improvements	$4,544,000	2012	None	$0	$4,544,000
3rd	Phase VIII Sewer	$7,694,490	2012	None	$2,000,000	$5,694,490
3rd	Street Repair/Improvements	$4,307,000	2013	None	$0	$4,307,000
4th	Phase IX Sewer	$6,111,828	2013	Sales/Use tax	$2,000,000	$4,111,828
4th	Street Repair/Improvements	$1,368,000	2014	None	$0	$1,368,000
4th	Water Meter System	$3,200,000	2013	None	$0	$3,200,000
5th	Phase X Sewer	$2,755,689	2014	Sales/Use tax	$2,000,000	$755,689
5th	Town Hall	$5,500,000	2014	None	$0	$5,500,000
5th	Sewer Lagoon Expansion	$4,500,000	2014	None	$0	$4,500,000
5th	Water Meter System	$2,800,000	2014	None	$0	$2,800,000
	Total	**$82,267,068**			**$10,000,000**	**$72,267,068**

4.4.4 Summary of Results—Sublette County

Sublette County government departments listed estimated departmental spatial expansion and capital items in their responses to ERG's questionnaires. These estimated needs are summarized in Table 4-19.

Table 4-19 Sublette County capital needs from questionnaire (Ecosystem Research Group 2008b)

Department	Capital Items	Spatial Expansion
Assessor	16 computers, software, 2 copiers, and 5 printers	500 square foot expansion increases existing space by 30%
Drug Court	3 computers, office furniture, upgraded urinalysis testing machinery, drug monitoring technology, and GPS locators	Double office space, add small lab facilities in new justice center
Emergency Management/ Sheriff's Office	Vehicles and support equipment	New law enforcement complex
GIS	Computer and plotter	None
Road and Bridge	Road project and construction equipment	None
Treasury	None	Space needed

Department	Capital Items	Spatial Expansion
Zoning and Planning	1 Computer per year	None
Elections	2 file cabinets, 2 computers, and trailer equipment	None
Environmental Health	2 computer stations, office furniture, bacteria water testing lab	400 square foot facility expansion triples existing space
Public Health	None	Spatial increase of 10% in conjunction with county building remodel
Waste Management	Cell construction for landfill air space, various equipment, and loader/dozer/trash compactor	20 acre expansion increases existing space by 50%

In follow-up meetings, Sublette County identified road projects anticipated through 2012 and potentially beyond. A detailed list of these projects follows in Table 4-20.

Table 4-20 Sublette County upcoming infrastructure projects (Lankford 2008)

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
1st	Calpet Highway	$25,000,000	2009-10	County	$3,000,000	$22,000,000
1st	Dry Piney Road	$10,000,000	2009-10	County	$0	$10,000,000
2nd	Guios Road	$6,000,000	2009-10	County	$0	$6,000,000
2nd	Horse Creek Road	$600,000	2009-10	County	$0	$600,000
3rd	Fremont Lake Road Bridge	$600,000	2010-11	County	$0	$600,000
4th	Middle Piney Road	$7,000,000	2011-12	County	$0	$7,000,000
4th	North Piney Road	$5,000,000	2011-12	County	$0	$5,000,000
5th	Fremont Lake Road	$1,200,000	Not defined	County	$0	$1,200,000
	Total	**$55,400,000**			**$3,000,000**	**$52,400,000**

4.5 CUMULATIVE PROJECT EXPENDITURES—CAPITAL ITEMS

Sublette County and towns anticipate spending a total of $160,203,677 in capital projects in the next few years to keep up with the pace of population growth. They currently have $17,106,797 available for these projects, resulting in a shortfall of $143,096,880. These needs are summarized in Table 4-21.

Table 4-21 Sublette County and Towns anticipated capital expenditures (Arthur 2008; Hurd 2008; Lankford 2008; Murphy 2008; Ninnie 2008)

County/ Town	Projects	Total Cost	Funds Available
Sublette County	Eight road maintenance projects	$55,400,000	$3,000,000
Big Piney	One groundwater maintenance project Seventeen road/sewer replacement projects	$9,256,754	$400,000
Marbleton	Two water well projects Two sewer treatment projects One water line project Two sewer line projects One curb/gutter/paving project One sidewalk project	$13,279,855	$3,700,797
Pinedale	Six sewer line projects Three water treatment and metering projects Five street projects One sewer treatment project	$82,267,068	$10,000,000
Total		**$160,203,677**	**$17,100,797**

5. ENERGY INDUSTRY WORKFORCE

5.1 INTRODUCTION

A detailed analysis of energy industry employment is needed to fully understand its impact on population. This section discusses traditional elements of workforce analysis such as full time equivalents (FTE), and direct, indirect, and induced employment positions. Unique elements of the energy industry, such as highly mobile workers, are also covered.

Determining the number of energy workers in place during the development phase of energy production which includes activities such as well pad construction, drilling, hydraulic treatments, and completion is surprisingly difficult. While a given operator may be responsible for overall operations of an oil and gas well, the majority of development phase tasks are assigned to contractors and subcontractors who, along with their employees, are based in locations both domestic and abroad. Worker counts are calculated through a variety of mechanisms such as operator workforce estimates, employment reports, modeling and trend analysis, and housing surveys. ERG used a combination of these methods to arrive at workforce numbers, as discussed below.

5.2 TRANSIENT WORKFORCE

A segment of those employed in the oil and gas industry is very mobile and generally not counted when population values are determined. These workers are often based out of state and are transported onto the work site for a period of one or two weeks. They then return to their home for an equal length of time before resuming work. Employees in this category, termed transient workers, do not maintain permanent residence in a project area although they are part of the workforce. By definition, these workers are difficult to count. For the purposes of this report, the transient population is estimated to be approximately 27.5 direct workers per active rig and includes drilling and hydraulic fracturing crews (Jacquet 2009). Using this formula with a count of 55 rigs, Sublette County's transient population is estimated at 1,513 workers.

5.3 TEMPORARY HOUSING SURVEY

Transient workers in Sublette County have no permanent housing and must rely on hotels, motels, employer-supplied housing, or other living arrangements. Based on the prior discussion of transient worker counts, periods of high drilling activity can bring over 1,500 workers to the county, all of whom require living quarters of some kind. Sublette County has not had sufficient temporary housing available for this many people, so workers and their employers have had to deal, at times creatively, with the housing shortage.

Traditional temporary housing usually consists of hotels and motels. When these are unavailable, workers turn to non-traditional options including camping (both tent and recreational vehicle), sleeping in personal cars, trailers, or company vehicles, and sleeping outdoors as the weather permits. Operators occasionally provide housing ranging from company apartments to tent and trailer complexes.

In 2008 and 2009, ERG administered a telephone survey to hotels, motels, and campgrounds in Sublette County. The results are summarized in Table 5-1. Respondents indicate that business has increased since 2000. Of the nine businesses contacted in Sublette County, five indicated that over 75% of their visitors are from the oil and gas industry, with two businesses quoting a figure of 90%. Most establishments reported a slight decrease in business during the winter months.

Table 5-1 Temporary housing survey (Ecosystem Research Group 2008d)

Hotel	Average Summer Visitors from Oil and Gas Industry Per Night
Baymont	148
Best Western Pinedale	94
Half Moon Motel	31
Lodge at Pinedale	69
Pine Creek Inn	32
Rivera Lodge	2
Teton Court Motel	20
Daniel Junction	5
Marbleton Inn	70
Total	**471**

Other temporary housing in the area includes EnCana's workforce facility, a semi-permanent tented housing area currently located in Jonah field that houses 150 to 200 people (Teeuwen 2009). Other oil and gas companies plan to house an additional 110 workers in similar facilities (Ecosystem Research Group 2008a).

Operators also house employees in company apartments, bunkhouses, townhouses, and trailers. Industry estimated housing 55 people in this manner during 2007, 2008, and 2009 (Ecosystem Research Group 2008a).

Based on results of the telephone survey and industry questionnaire, approximately 856 people stay in temporary housing each night during the summer. With a 20% reduction in hotel occupancy during the winter, this number decreases to approximately 762 people (Table 5-2). According to Jacquet's estimate of 1,513 transient workers, this leaves approximately 657 people unaccounted for each night during the summer when peak drilling takes place. Many workers commute daily from Rock Springs and others stay in RVs and trailers outside of zoned campgrounds and trailer parks (Coburn 2009).

Table 5-2 Transient worker count by housing type and season (Ecosystem Research Group 2009)

Housing Type	Summer	Winter
Hotel	471	377
Workforce Facility	385	385
Total	**856**	**762**

5.4 COMMUTERS

5.4.1 Intra-State Commuters

The 2000 Census reports inflow and outflow of commuters in Sublette County, indicating how many people live elsewhere and commute to Sublette County to work (inflow) and how many people live in Sublette County and commute elsewhere to work (outflow). The inflow values from the census are likely lower than actual values, as the 2000 Census predated Sublette County's increase in energy development and the accompanying rise in employment and population. While Table 5-3 and Table 5-4 show Sublette County had a net outflow of 175 workers in 2000, the following discussion of net residential adjustment demonstrates that net outflow commuting has decreased since 2000.

Table 5-3 Commuting inflow by county of residence for Sublette County's workforce (United States Census Bureau 2000)

Place of Residence	Number of Workers	% Total
Converse County	2	0.07%
Fremont County	13	0.46%
Lincoln County	75	2.68%
Natrona County	13	0.46%
Sublette County	2,598	92.92%
Sweetwater County	40	1.43%
Teton County	9	0.32%
Uinta County	10	0.36%
Outside of Wyoming	36	1.29%
Total	**2,796**	

Table 5-4 Commuting outflow by county of work for Sublette County's residents (United States Census Bureau 2000)

Place of Work	Number of Workers	% Total
Carbon County	3	0.10%
Fremont County	9	0.30%
Lincoln County	103	3.47%
Natrona County	3	0.10%
Park County	6	0.20%

Place of Work	Number of Workers	% Total
Sheridan County	4	0.13%
Sublette County	2,598	87.45%
Sweetwater County	45	1.51%
Teton County	134	4.51%
Uinta County	2	0.07%
Outside of Wyoming	64	2.15%
Total	**2,971**	

5.4.2 Net Residential Adjustment

Another component of oil and gas workers, termed in-commuters, permanently reside nearby and commute from outside Sublette County to work. Though these employees work within the county, their wages are spent elsewhere and represent a loss of money to county finances. The effect of commuters on wages that remain within the county is determined by the net residential adjustment (NRA) calculation. NRA is the total amount of money taken out of a county less the total amount of money brought in by commuters. A positive NRA indicates that more wages are taken out of the county than brought in. A negative NRA indicates that more wages are brought into the county than taken out. Table 5-5 and Figure 5-1 show Sublette County's net residential adjustment between 1995 and 2006, adjusted for inflation. Historically, the net residential adjustment in Sublette County has been positive meaning that more money is flowing out of Sublette County than in through commuters' wages. However, the amount has been decreasing since 2002, indicating that in-commuting has risen relative to out-commuting with oil and gas development. It is important to note that overall wages within the county have risen in step with energy development, which also affects net residential adjustment calculations.

Table 5-5 Sublette County net residential adjustment in thousands of dollars (1995$) (Bureau of Economic Analysis 2008)

Year	Net Residential Adjustment
1995	$4,313
1996	$4,241
1997	$4,647
1998	$5,193
1999	$6,326
2000	$6,137
2001	$6,490
2002	$6,552
2003	$6,363
2004	$5,716
2005	$3,795
2006	$2,170

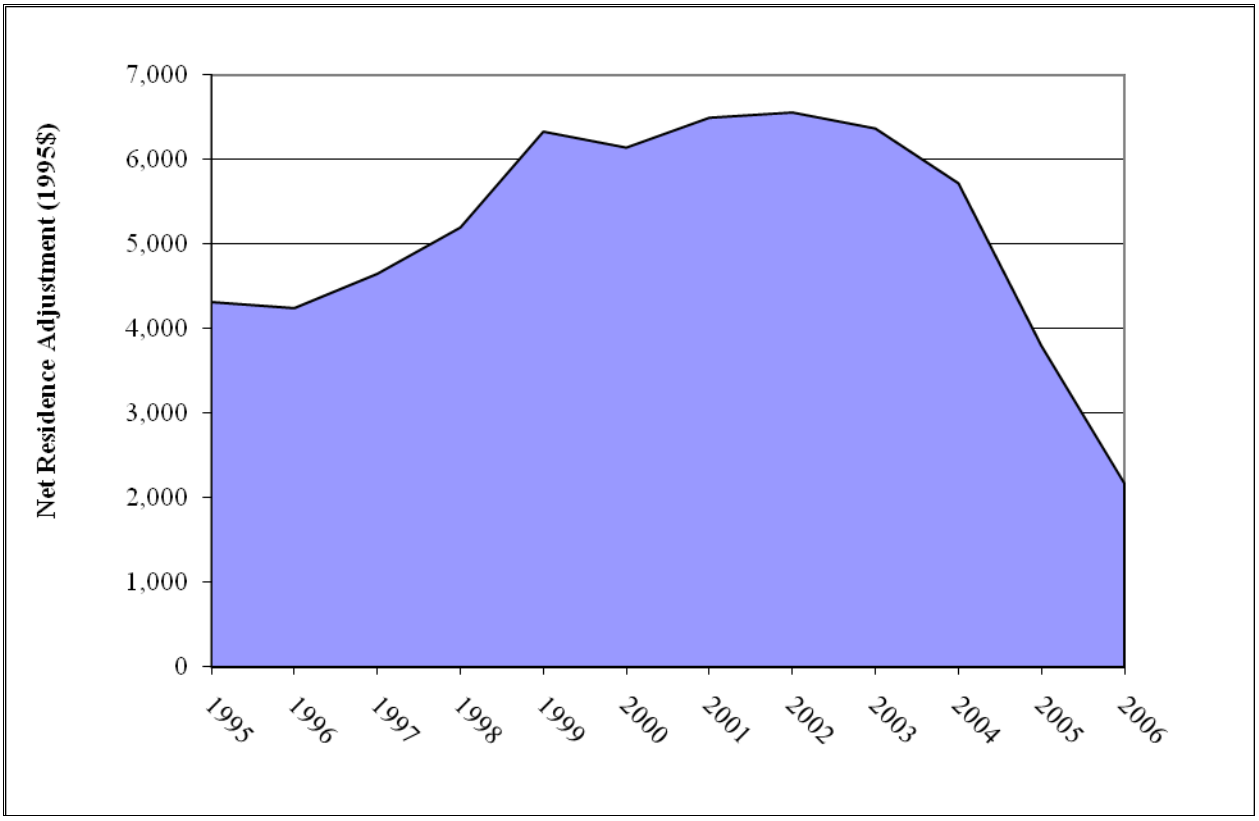

Figure 5-1 Sublette County net residential adjustment in thousands of dollars (1995$)

5.4.3 Inter-State Commuters

The Wyoming Department of Employment, Research, and Planning analyzed inter-state commuter patterns in Sublette County. Data were collected by determining worker residence location by state from drivers' license information and work location by company. The department found evidence of net commuter inflow, which supports the rise in Sublette County's transient worker population. Figure 5-2 shows the total net commuter inflow of workers in Sublette County between 2000 and 2005. The totals shown in the table are four-quarter moving averages of the inflow minus the outflow of workers. As depicted, Sublette County net worker inflow increased over 1,000 workers during this time period. In 2005, Sublette County's net resident inflow averaged a positive influx of 893.25 workers compared to 2000's negative outflow of 166.5 workers. This trend strongly follows the estimates of transient worker population. It should be noted that this count does not include Wyoming commuters who live outside of Sublette County—these workers fall into the Intra-State Commuter category.

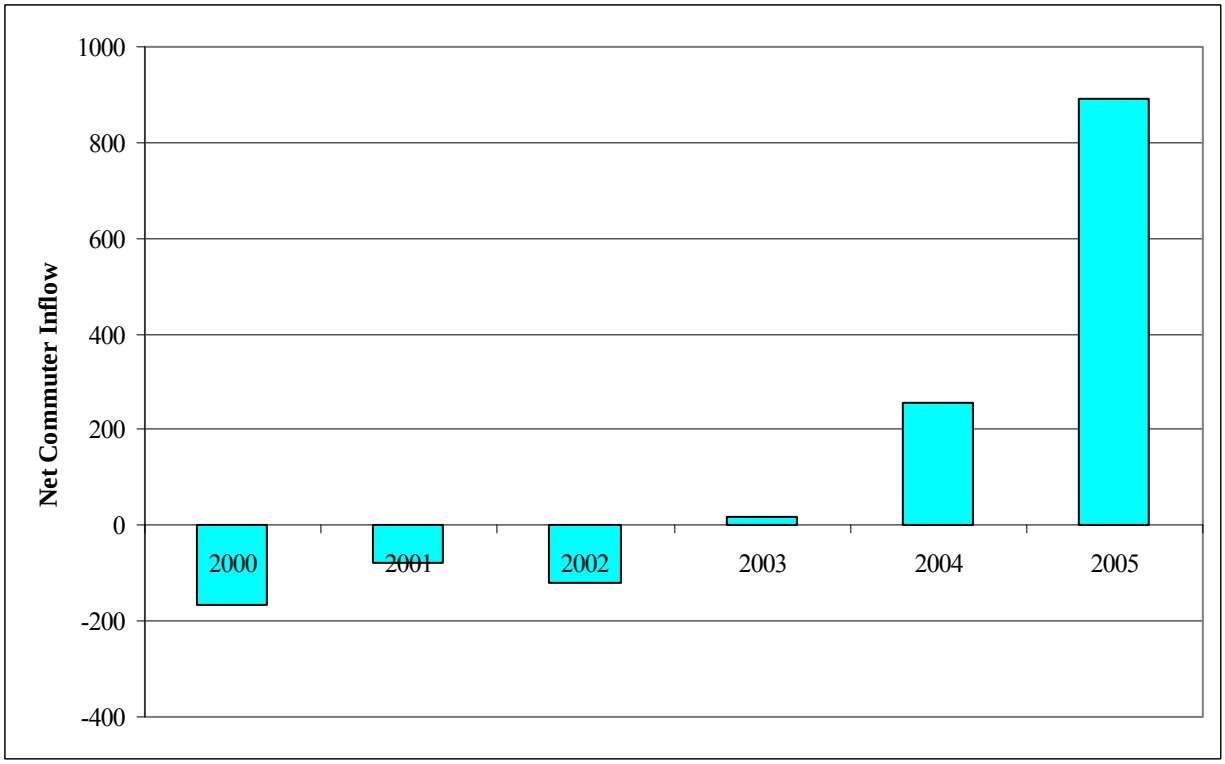

Figure 5-2 Sublette County's net commuter inflow of inter-state workers (Wyoming Department of Employment, Research, & Planning 2007)

Sublette County's net commuter inflow of workers with out-of-state drivers' licenses has increased since 2000 (Table 5-6). According to the 2000 U.S. Census, 93% of Sublette County's workforce resided in the county and 87% of Sublette County's residents worked in the county. In 2000, Sublette County had a larger proportion of worker out-flow than in-flow. However, this was before oil and gas development in the area. With the development of these industries, in-commuting has directly increased. The 2005 net-commuter inflow of only out-of-state workers was approximately 1,060 workers more than the 2000 count (Wyoming Department of Research & Planning 2009). More recent data is unavailable.

Table 5-6 Sublette County out-of-state net commuter inflow (Wyoming Department of Research & Planning 2009)

	2000	2001	2002	2003	2004	2005
Net Commuter Inflow	-166.50	-77.75	-118.00	19.75	254.50	893.25
Annual Change		88.75	-40.25	137.75	234.75	638.75

5.4.4 License Plate Survey

Michael Coburn, Socioeconomic Analyst for the Sublette Community Partnership, administered traffic counts at the intersection of State Route 351 and Paradise Road and the intersection of Luman Road and British Petroleum Jonah OC in Sublette County, Wyoming. At the intersection of Paradise Road and State Route 351, 506 of the 612 vehicles counted (82.7%) had Wyoming licenses, 77 (12.6%) vehicles had out-of-state license plates, and 29 (4.7%) were unknown due to poor license plate visibility. The data had a standard error of 0.014 or 1.4% indicating that the real percentage of in-state vehicles ranged from 81.3% to 84.1% and the real percentage of out-of-state vehicles ranged from 11.2% to 14.0% during this survey. At the intersection of Luman Road and British Petroleum Jonah OC, 342 of the 407 vehicles counted (84.0%) had Wyoming license plates, 42 (10.3%) had out-of-state licenses, and 23 vehicles (5.7%) were unidentifiable due to poor license plate visibility. The data had a standard error of 0.016 or 1.6% indicating that the real percentage of in-state vehicles ranged from 82.4% to 85.6% and the real percentage of out-of-state vehicles ranged from 8.7% to 11.9% during this survey.

5.5 INDUSTRY QUESTIONNAIRE

5.5.1 Survey instrument

In 2008/2009, ERG administered a survey to oil and gas companies operating in Sublette and surrounding counties. A total of 23 companies were contacted. The survey requested information including the number of workers per well per year for the drilling, production, reclamation phases, and workover maintenance; the production life span of a well; the companies' future schedule of operations for one, five, and ten-year timeframes; the total number of employees working in Sublette County during 2007, 2008, and projected for 2009 including information about family members who accompany workers to the area; the number of employees housed by the company including the housing location and type; any proposed camp and employee housing construction; and the total tax amount paid on energy production in Sublette County. The survey instrument and comprehensive results are found in Appendix A. To maintain confidentiality, all results are summarized.

5.5.2 Summary of Results

Survey responses were received from eight of the 23 operators, some with high levels of production and others with low or no production levels in Sublette County. Results indicate that employment is expected to remain relatively stable until 2013. At that time employment will decrease by approximately 500 employees and remain at that level until 2018. Table 5-7 and Figure 5-3 present this information, separated into development phases or work tasks. Note that these operator-supplied employment estimates are lower than those calculated from the Pinedale Anticline FSEIS and JIDP FEIS, which are

discussed later in this section. The recent downturn in oil and gas prices could contribute to this difference in employment projections.

Table 5-7 Total FTE projections by phase as supplied by operators, 2009–2018 (Ecosystem Research Group 2008a)

Phase	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Development Phase										
Drilling	1,137	1,176	1,199	1,217	1,238	713	689	666	642	642
Completion	151	151	151	108	108	108	108	108	108	108
Production	377	390	404	420	437	454	470	486	501	515
Reclamation and Pad Construction	210	194	127	94	90	78	61	61	61	61
Other										
Workover	53	53	59	66	73	74	74	75	75	76
Miscellaneous Employment	85	85	0	0	0	0	0	0	0	0
Total Employment	**2,012**	**2,047**	**1,940**	**1,905**	**1,946**	**1,426**	**1,403**	**1,395**	**1,387**	**1,402**

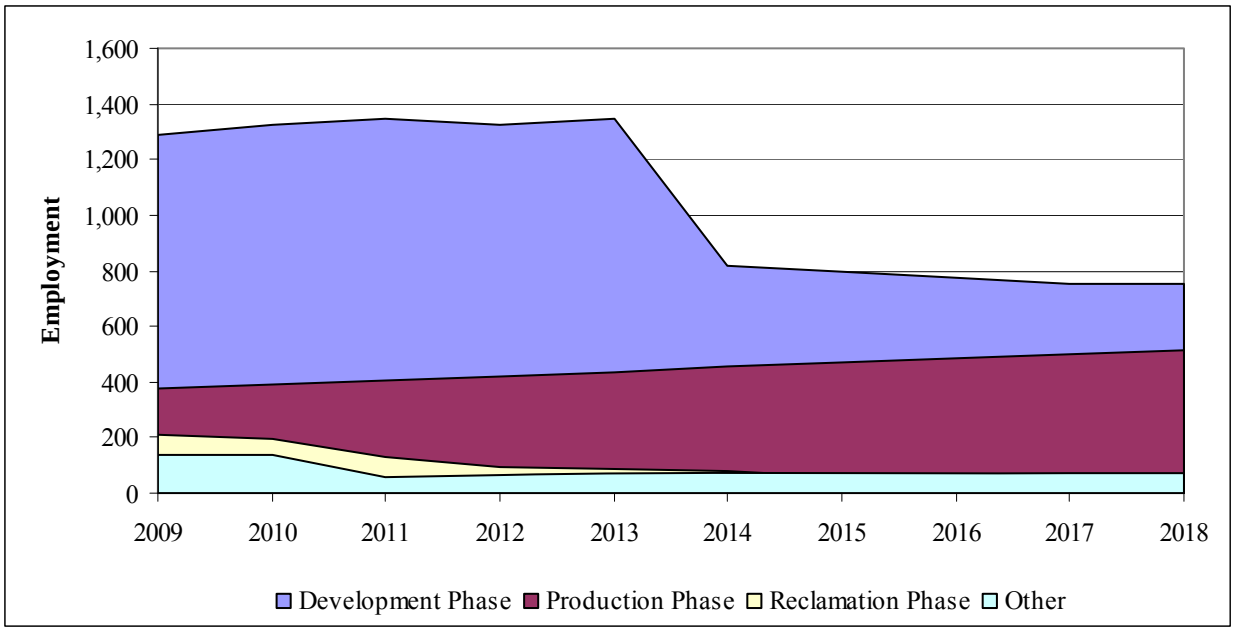

Figure 5-3 Total FTEs by phase as supplied by operators (Ecosystem Research Group 2008a)

The most labor-intensive period of oil field activity occurs in the development phase, as depicted in Figure 5-3. Industry respondents anticipate approximately a 30% decrease in personnel between 2013

and 2014 as drilling activity slows. The drop in drilling is accompanied by a slow but steady increase in production workers as activity shifts to the production phase. Personnel needs are lower during production as this phase requires less hands-on work. Reclamation is the least labor-intensive task and becomes almost a negligible component as time goes on. Well workovers occur roughly every 10 years throughout the production phase and are a steady segment of employment throughout the normal 40-year production cycle for wells in Sublette County.

5.6 IMPLAN® WORKFORCE ESTIMATES

5.6.1 IMPLAN® Methodology

IMPLAN® (IMpact analysis for PLANning) was developed in 1979 by the USDA Forest Service, Federal Emergency Management Agency, and the USDI Bureau of Land Management for land and resource management planning. It was privatized in 1993 by Minnesota IMPLAN® Group (MIG), Inc., who still manages and maintains the software.

IMPLAN® functions as a regional economic impact model that provides an input-output analysis of the flow of dollars and commodities through an economy (MIG, Inc. 2004b). National datasets are generated annually and are granular at a county level. Figures from 2005 are not included as IMPLAN® did not publish a dataset for Sublette County that year.

For this study, ERG used IMPLAN® to model indirect and induced employment effects of oil and gas development in Sublette County. Direct effects take place only in the immediately affected industry, indirect effects concern inter-industry effects, and induced effects measure the effects of the changes in household income. For example, direct workers would be those who actually perform drilling and construction tasks, indirect workers would perform support tasks such as hydraulic and perforation services, and induced employment would be found in local restaurants that serve the increased population of direct and indirect workers.

5.6.2 Employment Projection

The Pinedale RMP states that "Pinedale Anticline operators have indicated that approximately 60% of their drilling and completion labor force does not live within the study area" (USDI 2006a). ERG's IMPLAN® figures are based on this 40% local/60% non-local estimate of workers. ERG estimated the employment effects for 2009 through 2018 using drilling schedule information presented in the JIDP FEIS and Pinedale Anticline FSEIS. The total number of wells drilled is estimated at 555 in 2009 and decreases slightly until 2018 with an estimated 529 wells drilled. IMPLAN® measures workers in terms of annual job equivalents (AJEs). The estimated AJE represents 12 months of full-time employment

made up of full- and part-time jobs. For example, one AJE could represent one job for 12 months or three jobs for four months; the numbers are not transferable to census numbers. This contrasts with full time equivalents (FTE), which assumes a single person works during the entire year.

Table 5-8 shows IMPLAN®-projected total employment and employment per well figures for 2009 through 2018 based on drilling estimates from the Pinedale Anticline FSEIS and JIDP FEIS. The direct employment figure is divided into local and non-local workers using the 40%/60% ratio discussed earlier. In the Pinedale Anticline FSEIS, indirect and induced AJEs were estimated from spending per well while ERG's AJEs were configured from operator-provided FTE figures provided in both the Pinedale Anticline FSEIS and JIDP FEIS. These methodological differences explain the AJE differences between documents. As shown in the table, total employment increases slightly from 2009 to 2018, the estimated peak employment year.

Table 5-8 Employment projections, 2009–2018 (MIG, Inc. 2007)

Year	Direct Local	Direct Non-local	Indirect	Induced	Total
2009	810	1,215	470	257	2,752
2010	798	1,196	433	255	2,682
2011	803	1,206	471	258	2,738
2012	810	1,215	478	262	2,765
2013	816	1,224	484	265	2,789
2014	822	1,233	507	279	2,841
2015	830	1,244	496	272	2,842
2016	836	1,254	502	276	2,868
2017	838	1,256	506	278	2,878
2018	842	1,261	511	281	2,895

5.6.3 IMPLAN® Data Summaries

The following is an overview of recent economic growth and activity in Sublette County, based on IMPLAN® data. All indicators suggest rapid economic development, particularly as a result of increased drilling. Table 5-9 shows growth in population and employment from 2003 to 2007. Such gains, while creating economic prosperity and wealth, also results in pressure on infrastructure and social services.

Economic development in Sublette County between 2003 and 2007 has been substantial with employment rising 62% in four years. More remarkable are growth rates in household income at 128% and total personal income at 81%. Alternatively, population has increased 28% while the number of households decreased 20%. Note that a household is defined as a group of people (not necessarily related) living at the same address with common housekeeping, sharing either a living room or sitting room, or at least one meal a day.

Table 5-9 Sublette County overview 2003, 2004, 2006, and 2007 (MIG, Inc. 2003, 2004a, 2006, 2007)

Growth Category	2003	2004	2006	2007	Percent Change (2003–2007)
Population	6,191	6,654	7,359	7,925	28%
Employment	4,551	5,251	6,405	7,384	62%
Households*	3,678	2,666	2,925	2,925	-20%
Number of Industries	115	120	127	120	4%
Income per Household	$58,664	$90,659	$133,599	$133,599	128%
Total Personal Income**	**$215,800,000**	**$241,700,000**	**$390,800,000**	**$390,800,000**	**81%**

*a group of people (not necessarily related) living at the same address with common housekeeping, sharing either a living room or sitting room, or at least one meal a day
**income accruing to one person (income from job, investments, government payments, etc.)

Mining output and employment has increased since 2003. Figure 5-4 shows actual figures for mining output and employment for 2003 through 2007. The Sublette County IMPLAN® dataset is not available for 2005.

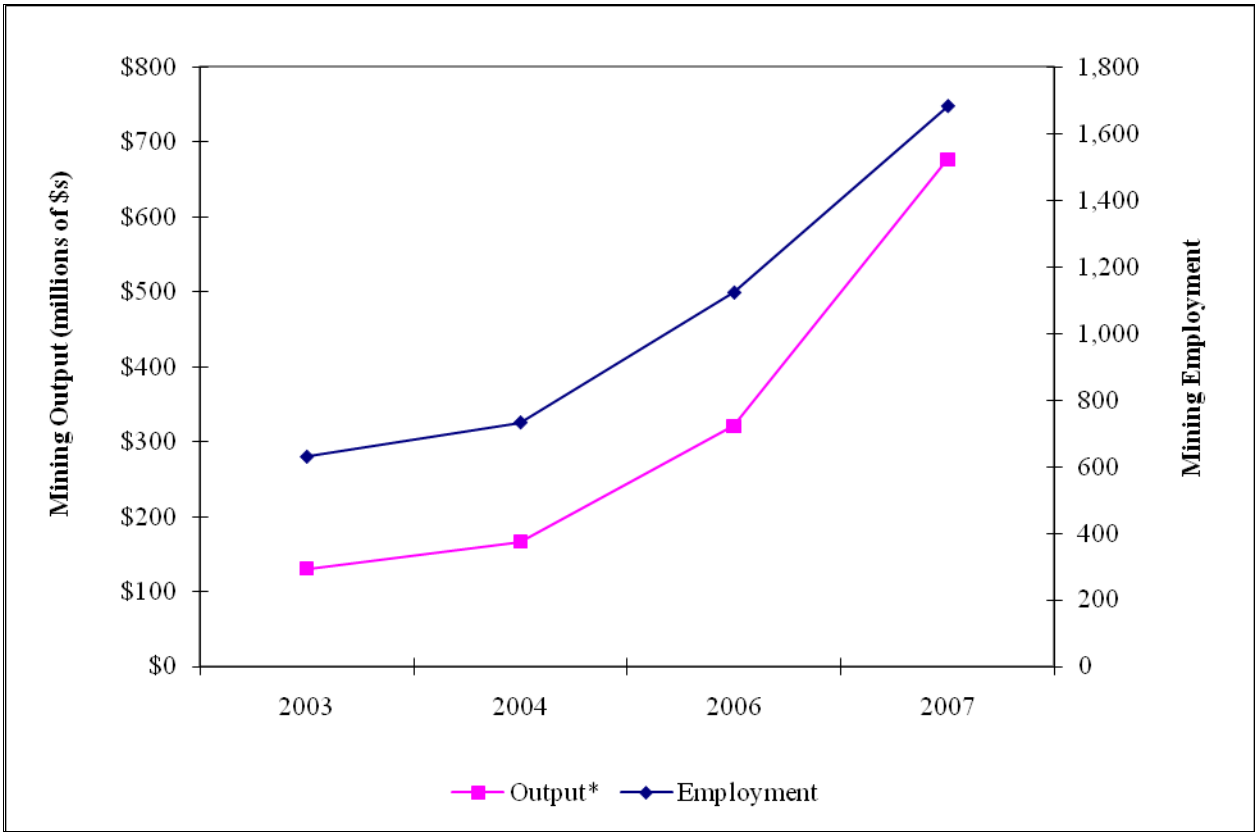

Figure 5-4 Mining Sector output and employment (MIG, Inc. 2003, 2004a, 2006, 2007)

Three industries closely related to oil and gas development are listed in Table 5-10. Sector 27 (Drilling Oil and Gas Wells) showed tremendous growth in output (change in domestic production from one year to the next, usually measured by gross domestic product [GDP]), value added (through processing along the supply chain), and employment between 2003 and 2007. Sectors 19 (Oil and Gas Extraction) and 28 (Support for Oil and Gas) showed increases in all categories, though not as dramatically. The three IMPLAN® sectors are bridged with the NAICS code classifications as follows:

- IMPLAN® Sector 19, Oil and Gas Extraction = NAICS Code 211, Oil and Gas Extraction
- IMPLAN® Sector 27, Drilling Oil and Gas Wells = NAICS Code 213111, Drilling Oil and Gas Wells
- IMPLAN® Sector 28, Support for Oil and Gas = NAICS Code 213112, Support for Oil and Gas

Although the NAICS codes are bridged with the IMPLAN® sectors for reference, IMPLAN® employment data were derived from several sources and provide estimates for non-disclosed data. The numbers will not always directly correlate with employment data from other sources. These data were derived from IMPLAN® and are reflected in nominal dollars.

Table 5-10 Output, value added, and employment by IMPLAN® sector 2003, 2004, 2006, 2007 (MIG, Inc. 2003 2004a, 2006, 2007)

Industry Sector	2003	2004	2006	2007	Percent Change (2003–2007)
Sector 19 Oil and Gas Extraction (Sector 20: 2007 dataset)					
Extraction Output*	81.97	85.53	129.47	135.55	65.4%
Employment	147.00	159.00	240.00	205.00	39.5%
Employee Compensation*	14.6	17.05	28.9	27.4	87.7%
Proprietor Income*	0.24	0.87	3.77	6.33	2537.5%
Other Property Income*	23.13	25.15	41.73	39.79	72.0%
Indirect Business Tax*	4.83	4.94	7.92	8.12	68.1%
Total Value Added*	42.8	48	82.32	81.63	90.7%
Sector 27 Drilling Oil and Gas Wells (Sector 28: 2007 dataset)					
Drilling Output*	0.98	0.52	20.18	239.7	24359.2%
Employment	13.00	2.00	30.00	241.00	1753.8%
Employee Compensation*	0.24	0.05	2.06	23.96	9883.3%
Proprietor Income*	0.04	0.01	0.51	0.96	2300%
Other Property Income*	0.22	0.17	3.75	99.61	45177.2%
Indirect Business Tax*	0.05	0.02	0.82	2.51	4920%
Total Value Added*	0.56	0.25	7.18	127.04	22585.7%
Sector 28 Support for Oil and Gas (Sector 29: 2007 dataset)					
Support Output*	47.86	80.37	171.13	301.37	529.7%
Employment	470.00	572.00	853.00	1,237.00	163.2%
Employee Compensation*	20.24	24.53	50.69	89.58	342.6%
Proprietor Income*	2.83	3.43	7.82	4.06	43.5%
Other Property Income*	15.12	34.56	96.62	26.51	75.3%
Indirect Business Tax*	2.70	3.546	7.05	3.68	36.3%
Total Value Added*	40.89	66.06	162.18	123.83	202.8%

*millions of dollars

5.7 PROJECTED DRILLING TABLES FROM PAPA AND JONAH ESTIMATES

Direct FTE employment numbers were projected based on information provided in the Pinedale FSEIS and the JIDP FEIS. After direct employment was estimated, IMPLAN® was used to estimate indirect and induced employment figures.

5.7.1 Projection of Direct Employment

The schedule for well drilling was derived from the JIDP FEIS and Pinedale Anticline FSEIS Preferred Alternative. Information from the same documents was used to project number of employees needed to complete drilling, production, and reclamation phases.

5.7.2 Development (Drilling) Phase

The development phase consists of well pad and access road construction, rig transportation and setup, drilling, completion testing, and pipeline construction. Based on the JIDP FEIS, 830 worker days are needed to complete a well over a 54 day period, averaging 15.4 workers per day per well, or annualized to 2.3 FTE workers per well per year for development. According to the Pinedale Anticline FSEIS, 1,640 worker days are needed per well over a 72 day period, averaging 22.8 workers per day per well, or annualized to 4.5 FTE workers per well per year. The difference in estimates between fields may be due to the distance between wells and pads (for moving rigs and building roads), the depth to gas underground, and the use of vertical versus directional drilling. ERG estimated that Jonah field development makes up 41% (3,100) of the wells to be drilled, while the Pinedale Anticline makes up 59% (4,399) of the wells based on those two proposals (USDI 2006a, 2006b). Using these estimates, the number of wells to be drilled in each field and the number of workers needed to complete the wells was calculated for each year. Figure 5-5 shows the annual number of employees needed to complete the development phase for the Jonah and Pinedale Anticline fields.

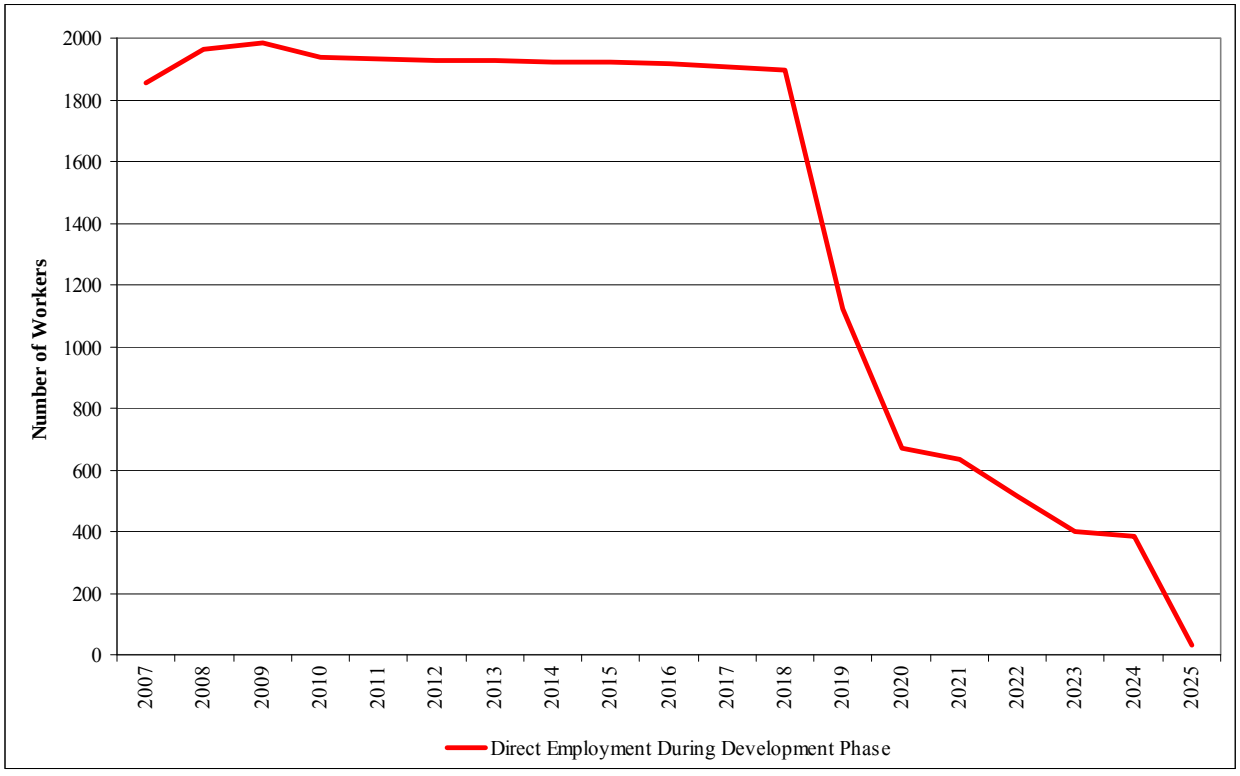

Figure 5-5 Annual number of FTE employees needed to complete the development phase (USDI 2006a, 2006b)

5.7.3 Production Phase

The estimated number of workers needed during the production phase was provided only in the JIPD FEIS and were assumed to be similar for both fields because data specific to the Pinedale Anticline were not available to ERG. According to the JIDP FEIS, 515 worker days are needed for production and maintenance over the 40 year life of a well, which annualizes to 0.035 FTE workers per year per well for 40 years. Figure 5-6 shows the estimated number of workers needed per year to complete the production phase.

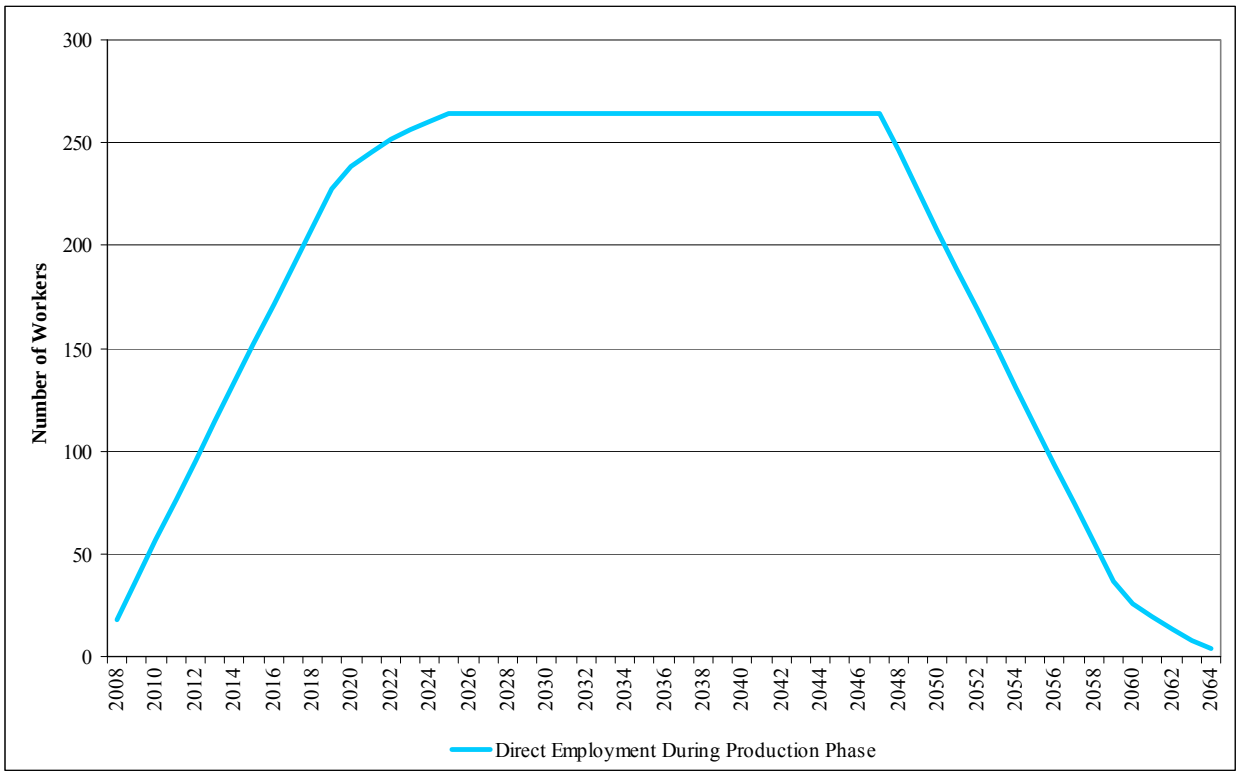

Figure 5-6 Annual number of FTE employees needed to complete the production phase (USDI 2006a, 2006b)

5.7.4 Post-production/Reclamation Phase

Reclamation estimates were provided only in the JIDP FEIS and were assumed to be similar for both fields because data specific to the Pinedale Anticline were not available to ERG. According to the document, 50 workers (ten people for five days) are needed to complete reclamation, which is equivalent to 0.14 FTE workers per well per year. Figure 5-7 shows the estimated number of workers needed per year to complete the reclamation phase.

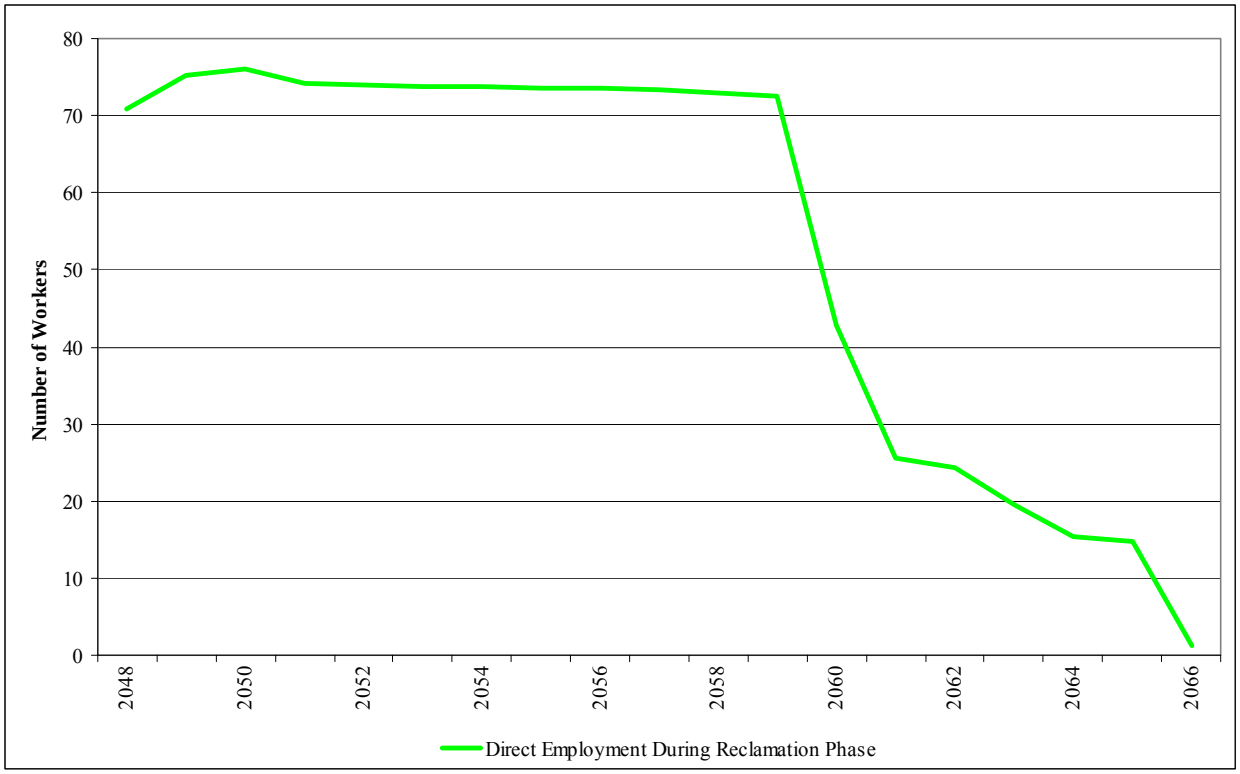

Figure 5-7 Annual number of FTE employees needed to complete the post-production/reclamation phase (USDI 2006a, 2006b)

5.7.5 Life of Plan

Total FTE employment over the life of the plan (Pinedale Anticline FSEIS Preferred Alternative) begins with an estimate of 1,854 employees in 2007. Estimated employment peaks in 2018 with approximately 1,894 FTE development workers and 209 FTE production workers totaling 2,103 workers for that year. Employment drops quickly after 2018 as drilling comes to an end. The expected largest decrease in employment would occur around 2019 when approximately 750 FTE workers from the previous year will no longer be needed. Figure 5-8 depicts the estimated number of FTE employees needed annually to complete all three phases of field development. Viewed another way, Figure 5-9 illustrates the contribution to total employment for each phase, with employment peaking in 2018 with approximately 2,103 workers.

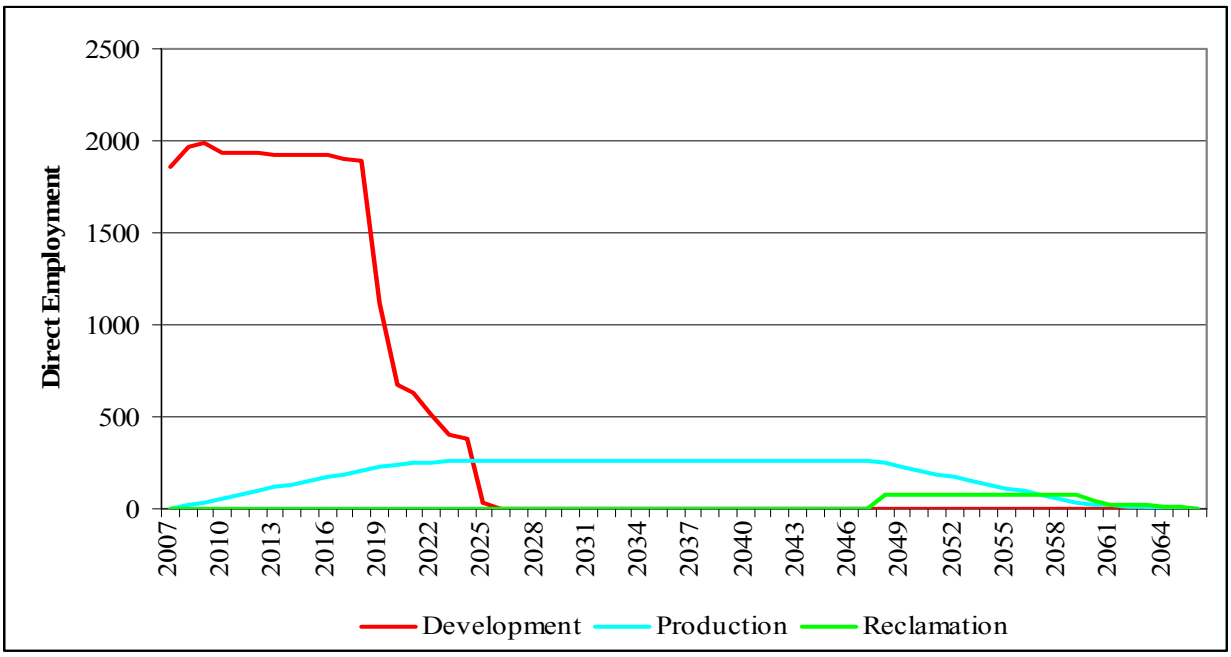

Figure 5-8 Annual number of FTE employees needed to complete development, production, and post-production/reclamation phases (USDI 2006a, 2006b)

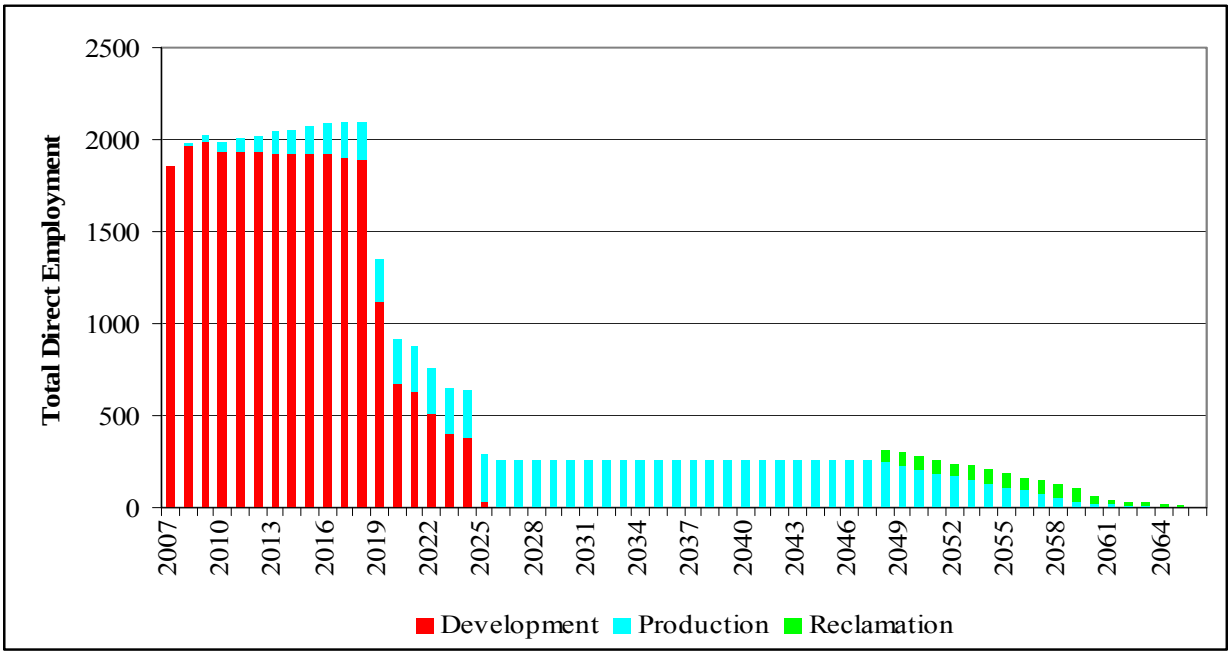

Figure 5-9 Projected total annual FTE employment over the life of the plan (USDI 2006a, 2006b)

5.8 CUMULATIVE IMPACTS TABLE – SUMMARY

The Pinedale RMP defines cumulative impacts as follows (USDI 2006a):

> Cumulative impacts result from the incremental impact of an action when added to the past, present, and reasonably foreseeable future actions, regardless of which agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over time.

A comprehensive table is included in Appendix B of the document. This table shows oil and gas-related projects by field office, including the Bridger-Teton National Forest. Additionally, it lists projects within Sublette County and surrounding counties that may affect Sublette County. Some figures, such as development on private land, were not supplied.

6. EMPLOYMENT AND PERSONAL INCOME

6.1 INTRODUCTION

Mining, including oil and gas, was the largest private employment sector in Sublette County in 2007 (United States Department of Labor 2008b). Average wages and earnings in all sectors, and especially the mining sector, appear to be influenced by the influx of high-paying mining industry jobs. Significant wage variation exists between industry-related jobs and other employment sectors across the county. This is of concern to permanent Sublette County residents who work outside of the Mining Sector, as higher average wages for temporary and transient workers can drive up the cost of living, including housing and services. This inflation can make it difficult for non-mining industry residents to maintain their standard of living. The following sections describe the worker distribution in the county's four major employment sectors (Mining; Construction and Manufacturing; Arts, Food, and Accommodation; and Wholesale and Retail Trades), the county's unemployment rate compared to the state, and wages earned by workers in the four major sectors.

This discussion focuses on private sector employment, which is affected to a greater degree by local economic pressures than government employment. Overall, government employees comprise 12.1% of the 2007 county-wide workforce, with private industry making up the remaining 87.9% (Bureau of Economic Analysis 2008).

Classifications discussed in this section are based on the North American Industry Classification System (NAICS). This standard was introduced in 1997 and became widely used by federal and state governments in 2004. The purpose of NAICS and its predecessor, the Standard Industrial Classification (SIC), is to establish a consistent method of identifying business establishments for economic and financial analysis. For purposes of this discussion, it is useful to note that the NAICS Mining Sector includes four sub sectors: NAICS 211, Oil and Gas Extraction; NAICS 212, All Mining except Oil and Gas; NAICS 213, Support Activities for Mining; and NAICS 213112, Support for Oil and Gas.

6.2 EMPLOYMENT BY SECTOR

The top four employment sectors in Sublette County are Mining; Retail Trade; Arts, Food and Accommodation; and Construction and Manufacturing. Other sectors, such as Transportation; Utilities; Finance; Professional Services; and Agriculture employ a smaller segment of the working population. Figure 6-1 shows historical employment levels for various sectors between 2001 and 2007. The figure depicts a definite grouping of the major employment sectors separated from minor sectors.

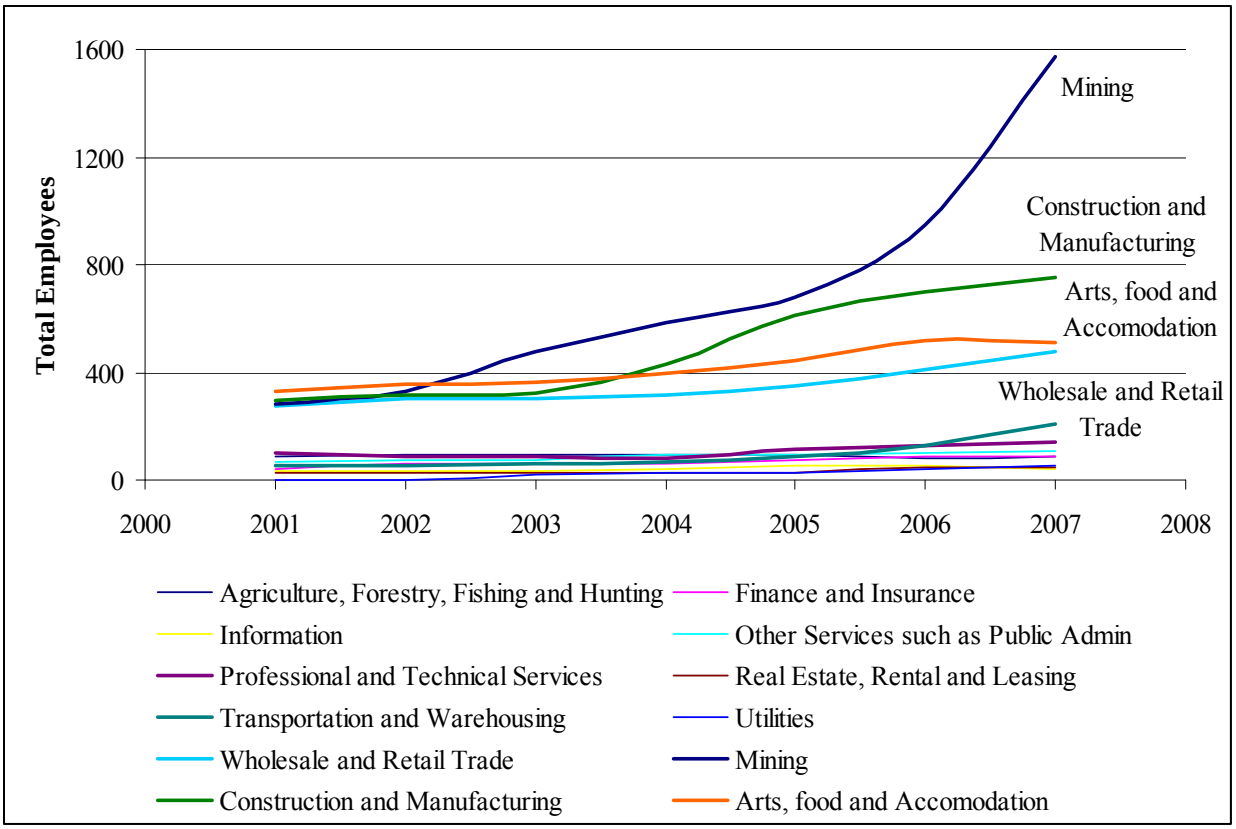

Figure 6-1 Total employees per sector (United States Department of Labor 2008b)

Table 6-1 Total employees per sector (United States Department of Labor 2008b)

Sector	2001	2002	2003	2004	2005	2006	2007	% Change 2001 to 2007
Agriculture, Forestry, Fishing and Hunting	88	91	94	92	93	79	85	-3.4%
Finance and Insurance	42	61	61	63	71	86	90	114.3%
Information	33	35	32	37	57	51	37	12.1%
Other Services such as Public Administration	68	71	74	92	94	99	105	54.4%
Professional and Technical Services	100	86	87	83	112	131	139	39.0%
Real estate, Rental and Leasing	27	29	27	25	29	44	46	70.4%
Transportation and Warehousing	51	54	60	64	88	127	206	303.9%
Utilities	0	0	23	24	30	41	56	N/A
Wholesale and Retail Trades	275	301	301	314	347	408	477	73.5%
Mining	279	329	478	583	680	946	1570	462.7%

Sector	2001	2002	2003	2004	2005	2006	2007	% Change 2001 to 2007
Construction and Manufacturing	297	316	321	433	613	701	752	153.2%
Arts, Food and Accommodation	328	354	361	398	441	518	514	56.7%

In recent years, sectors with a small number of employees make up a smaller percent of total employment though the actual employment numbers within those sectors are either staying relatively constant or increasing. The gap between mining employment and other sectors commenced in 2002–2003 and has increased since.

Employment in the Mining Sector has increased markedly during the 2000s, as reflected in Figure 6-1 and Table 6-1. Data were not available to calculate the exact percentage of oil and gas employment in the Mining Sector; however, available data show that much of the employment in the Mining Sector is related to oil and gas development.

Table 6-2 Number of employees in oil- and gas-related sectors (United States Department of Labor 2008b)

Employment Sector	2001	2002	2003	2004	2005	2006	2007
NAICS 21: Mining	279	329	478	583	680	946	1,570
NAICS 211: Oil and Gas Extraction	119	118	131	ND*	ND	ND	ND
NAICS 212: All Mining except Oil and Gas	ND	ND	ND	ND	ND	ND	ND
NAICS 213: Support Activities for Mining	160	211	347	439	508	737	1,335
NAICS 213112: Support for Oil and Gas	ND	ND	ND	ND	ND	ND	ND

*Not disclosed

6.3 UNEMPLOYMENT

As might be expected, unemployment in Sublette County has declined since 2003. Although this trend parallels the state and nation, the county's 1.5% unemployment rate is lower than Wyoming's 3% rate and much lower than that of the nation's 4.6% rate (Figure 6-2). According to correspondence from the towns of Marbleton and Big Piney, employers in Sublette County often struggle to find employees to fill vacancies because unemployment levels are low (Town of Big Piney 2007a; Town of Marbleton 2007a).

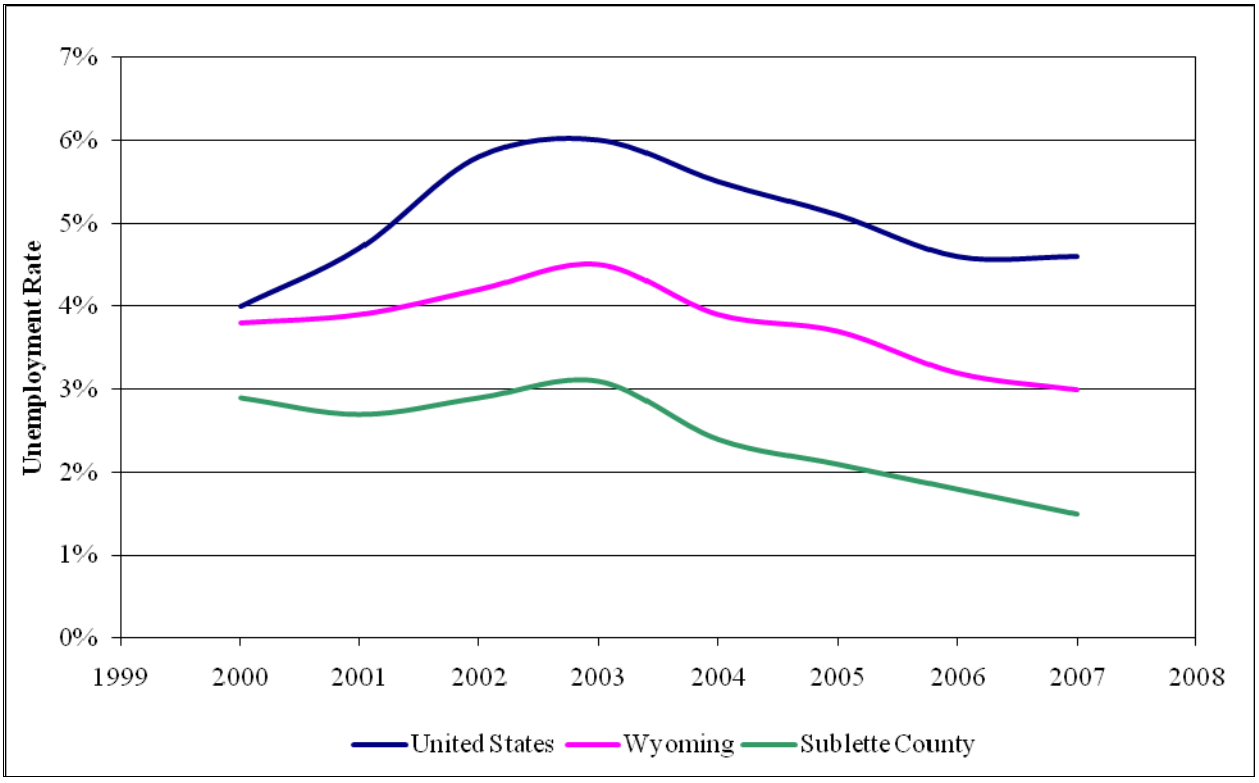

Figure 6-2 Unemployment rates for the United States, Wyoming, and Sublette County, 2000–2007 (United States Department of Labor 2008a)

6.4 INCOME AND WAGES

Wages in the Mining Sector are much higher than other sectors in Sublette County and have steadily increased over time. Figure 6-3 depicts average annual wages by sector in Sublette County between 2001 and 2007. Although lower in comparison with the Mining Sector, wages in the Arts, Construction, and Retail Sectors have consistently increased over the last few years.

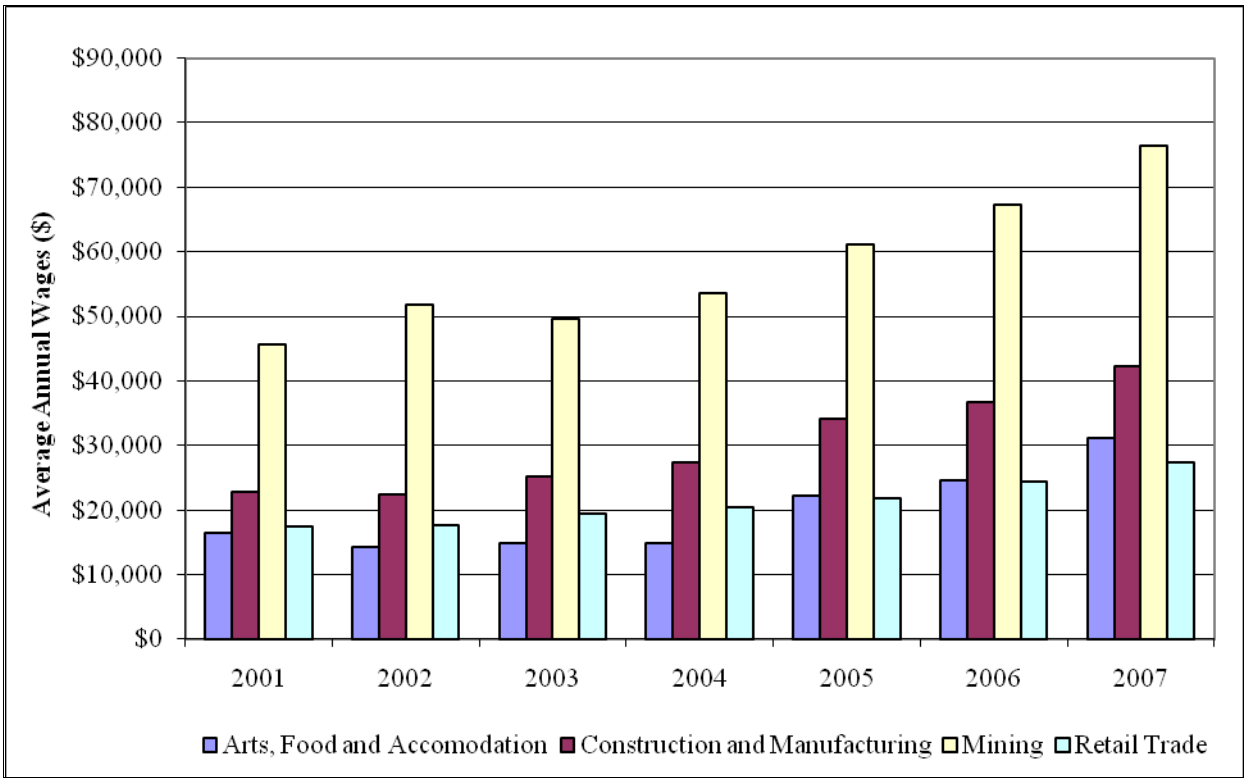

Figure 6-3 Average annual wages for Sublette County (United States Department of Labor 2008b)

As mentioned previously, high wages in the Mining Sector drive up wages in other industries. This can affect small businesses by forcing them to raise prices on goods and services to maintain a profit. Higher wages also mean that employees have more disposable income, leading to higher demand for many products, also driving up prices. These factors, combined with the county's housing shortage, have led to localized inflation that has raised the average cost of living (Jacquet 2006). Sublette County has the second-highest cost of living index in Wyoming, with Teton County ranked the highest (Section 6.5) (State of Wyoming 2007).

Workers in sectors with lower average wages may find it difficult to keep up with the cost of living. This is apparent in the service industry, where starting wages, although high for the rest of the state, are low in Sublette County when compared to the cost of living. For other industries, low average wages and high cost of living can discourage new employees from moving to the area.

Localized inflation can influence the ability of the local government to maintain and develop the infrastructure needed to support the growing population. As the cost of supplies and labor increases, so does the cost of infrastructure projects such as road maintenance and water and sewer expansion. This

can lead to increased and unforeseen municipal expenditures, potentially offsetting the benefit of energy taxes.

In accordance with wage increases, inflation in southwest Wyoming (comprised of Lincoln, Sublette, Sweetwater, and Uinta counties) has consistently been above both the state of Wyoming and the nation since the 4th quarter of 2004. Figure 6-4 demonstrates this trend. The increase in inflation has resulted in an increase in the cost of living for Sublette County.

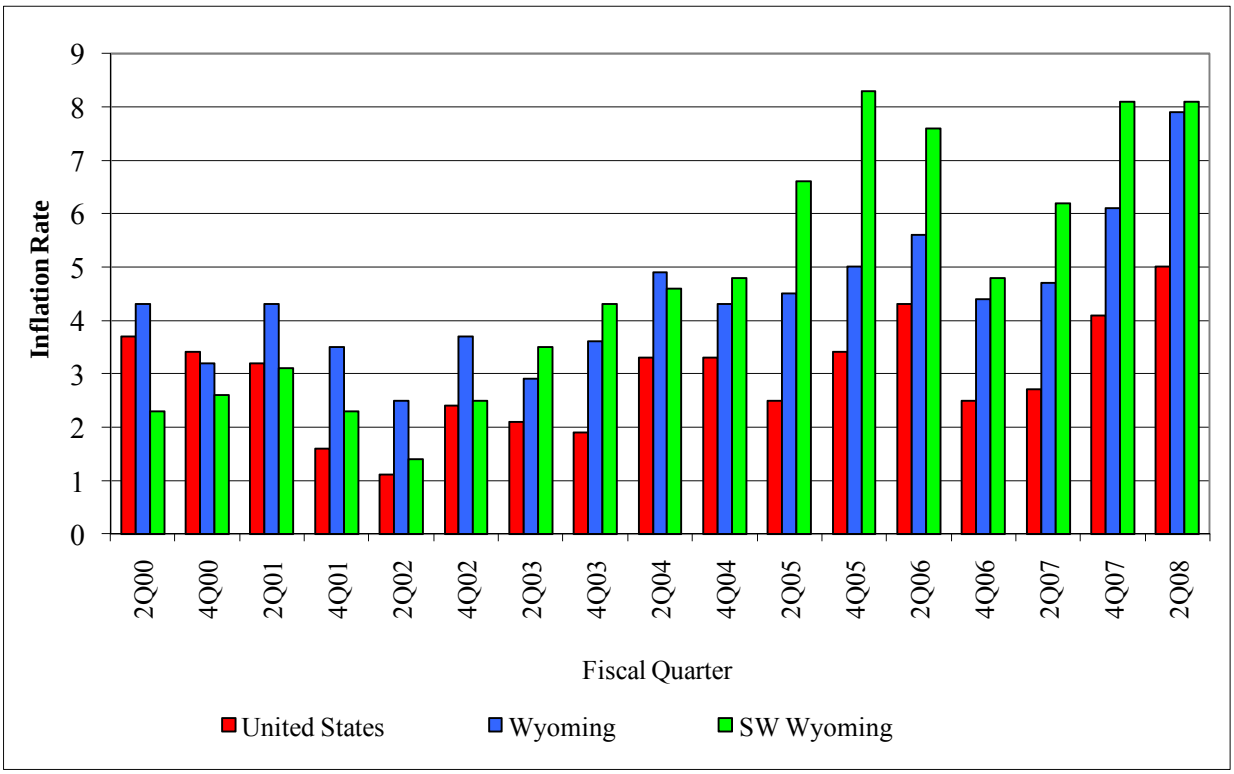

Figure 6-4 Inflation rates for the United States, Wyoming, and southwest Wyoming (State of Wyoming 2007)

6.5 COST OF LIVING

A cost of living index is a measure of how much money is required for a consumer to maintain a certain standard of living over time. Sublette County currently has the second highest cost of living index in Wyoming; a typical bundle of goods costs more in Sublette County than in any other county in Wyoming except for Teton County. This trend is displayed in Table 6-3, which presents the cost of living indices for 2000 and 2008.

Table 6-3 Cost of living index by Wyoming County, 4th quarter 2000 and 2nd quarter 2008 (Wyoming Economic Analysis Division 2009)

County	4Q 2000 Index	2Q 2008 Index
Teton	141	138
Sublette	106	115
Campbell	103	111
Sweetwater	97	107
Sheridan	105	105
Natrona	97	101
Carbon	96	101
Johnson	106	100
Lincoln-Afton	92	100
Laramie	102	97
Albany	104	96
Fremont	96	94
Lincoln-Kemmerer	92	93
Uinta	98	93
Park	100	93
Converse	93	91
Goshen	92	90
Weston	90	90
Crook	91	90
Washakie	92	89
Big Horn	91	88
Hot Springs	92	87
Niobrara	89	85
Platte	94	84

7. HOUSING, SOCIAL SERVICES, AND QUALITY OF LIFE PROJECTIONS

7.1 HOUSING

Housing is a critical component in evaluating quality of life, and Sublette County has struggled in this area. Affordable housing is lacking in Sublette County, as apparent by the steep increase in housing and rental costs in the past five years, the increase in population, and the comparatively low wages earned by many residents of the county. Housing prices have been increasing with a trend of $21,207 per year from 1997 to 2007. In Figure 7-1 the average annual sales price of a home in Sublette County is graphed against the cumulative number of wells drilled within the county. As shown in this figure, 2003 marks a shift in sales price trends, with annual prices increasing at a higher rate from that year forward. Table 7-1 shows the average annual sales price of homes in Sublette County.

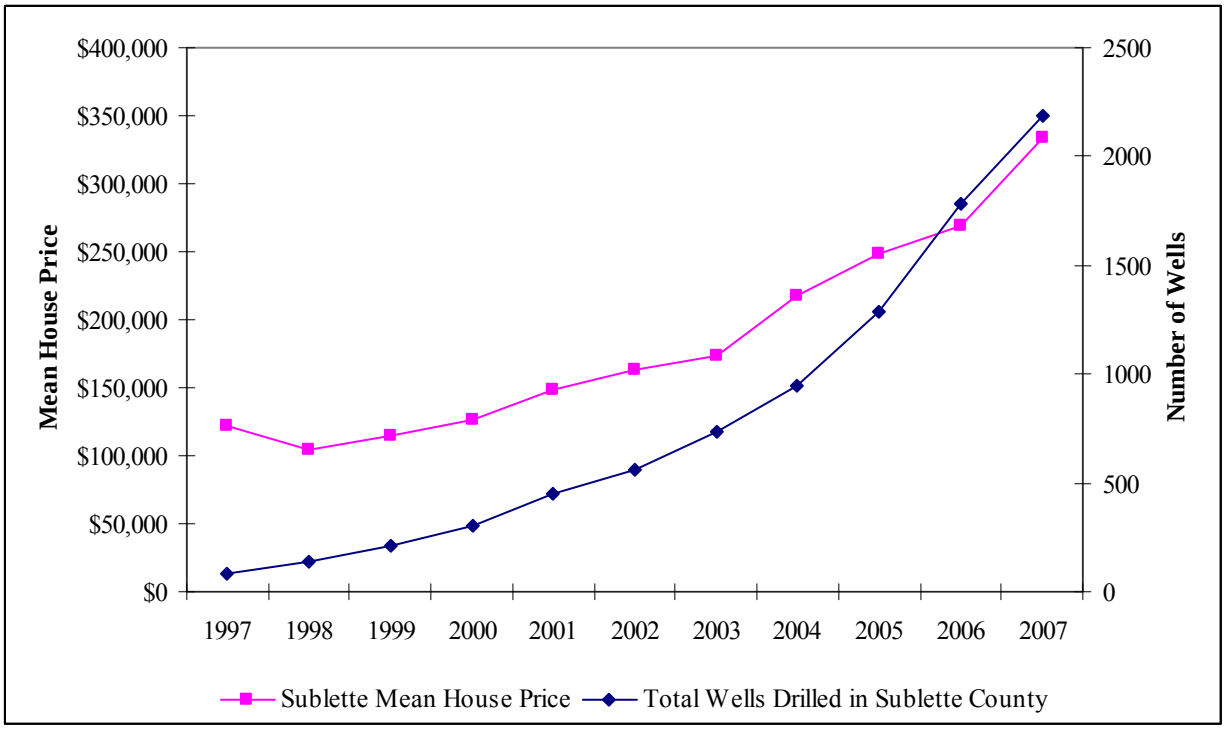

Figure 7-1 Housing prices vs. cumulative number of wells drilled (Wyoming Community Development Authority 2009; Wyoming Oil and Gas Conservation Commission 2009)

Table 7-1 Average annual sales price of homes in Sublette County (Wyoming Community Development Authority 2009)

Year	Sublette County Average Sales Price	Annual Percent Change Sublette County	Statewide Average Sales Price	Annual Percent Change Statewide
1997	$122,608	NA	$91,714	NA
1998	$104,375	-14.87%	$96,906	5.66%
1999	$114,020	9.24%	$101,517	4.76%
2000	$125,922	10.44%	$111,437	9.77%
2001	$149,179	18.47%	$116,469	4.52%
2002	$163,473	9.58%	$121,140	4.01%
2003	$173,116	5.90%	$132,708	9.55%
2004	$218,343	26.13%	$142,501	7.38%
2005	$249,029	14.05%	$159,776	12.12%
2006	$269,795	8.34%	$187,869	17.58%
2007	$334,073	23.82%	$239,019	27.23%
Change 1997–2007	$211,465	172.47%	$147,305	160.61%
Change 1997–2003	$50,508	41.19%	$40,994	44.70%
Change 2003–2007	$160,957	92.98%	$106,311	80.11%

The overall percentage change in statewide sales prices is somewhat misleading. The average sales price in Teton County increased over $600,000 between 2006 and 2007, which skews statewide averages. Excluding Teton County from the 2007 statewide average sales price results in an average of $184,378 over the remaining 22 counties. Accordingly, the statewide change between 2003 and 2007 is 56.66% when excluding Teton County.

7.1.1 Housing Affordability

Housing affordability is a calculation that estimates the minimum income required to purchase a house of a given price. Using the average sales prices listed in Table 7-1, ERG determined the minimum income necessary to purchase a house at the average sales price in Sublette County. The following calculations assumed a 30-year fixed loan of 6% with the buyer providing 20% of the price as a down payment. Standard amortization schedules were used to determine the monthly payment, and this value was multiplied by 48 to arrive at the minimum qualifying income (National Association of Realtors 2009). Data are provided in nominal prices.

Table 7-2 Minimum qualifying income needed to purchase average home in Sublette County and Wyoming (Wyoming Community Development Authority 2009)

Year	Sublette County Average Sales Price	Minimum Qualifying Income in Sublette County	Median Family Income in Sublette County	Statewide Average Sales Price	Minimum Qualifying Income in Wyoming	Median Family Income in Wyoming
1997	$132,769	$28,224	$36,700	$91,714	$21,120	$48,412
1998	$141,904	$24,048	$36,700	$96,906	$22,320	$51,897
1999	$151,620	$26,256	$37,900	$101,517	$23,376	$55,624
2000	$174,653	$28,992	$40,400	$111,437	$25,680	$55,859
2001	$188,409	$34,368	$40,400	$116,469	$26,832	$58,541
2002	$195,077	$37,632	$40,400	$120,314	$27,888	$57,148
2003	$239,657	$39,840	$54,400	$130,294	$30,576	$56,065
2004	$264,384	$50,256	$56,300	$147,588	$32,784	$54,935
2005	$277,479	$57,312	$56,300	$160,497	$36,960	$55,250
2006	$334,073	$62,112	$59,400	$187,869	$43,248	$58,800
2007	$132,769	$76,896	$59,100	$265,044	$61,008	$58,500

As seen in Table 7-2, the qualifying income for the average home in Sublette County was lower than the median family income through 2004. In 2005, the qualifying income surpassed the median family income by approximately $1,000. The gap between qualifying and median family incomes has continued to increase so that by 2007, the qualifying income to purchase an average house outpaced the median family income by over $17,000. If this trend continues fewer and fewer families will be able to afford an average house in Sublette County. Comparable statewide figures show that through 2006, the minimum qualifying income to purchase the average house in Wyoming was much less than the median statewide family income.

To present this information in another manner, Figure 7-2 shows the average annual wages by employment sector and the qualifying annual income needed to buy the average home in Sublette County between 2001 and 2007. In 2001, the Mining Sector was the only sector whose average annual income exceeded the qualifying income to buy a $149,000 home, which was the average sales price for that year. From 2001 to 2006, the Mining Sector continued to be the only sector whose average annual income exceeded the qualifying income. All other employment sectors had average annual incomes significantly below that required to buy a house. By 2007, the qualifying income to buy a home caught up with the Mining Sector income and was still far above the average income of all other sectors. The average annual qualifying income to purchase a $334,000 home was $76,896 in 2007. The Mining Sector, with by far the largest average annual income, had an average annual income of $76,495.

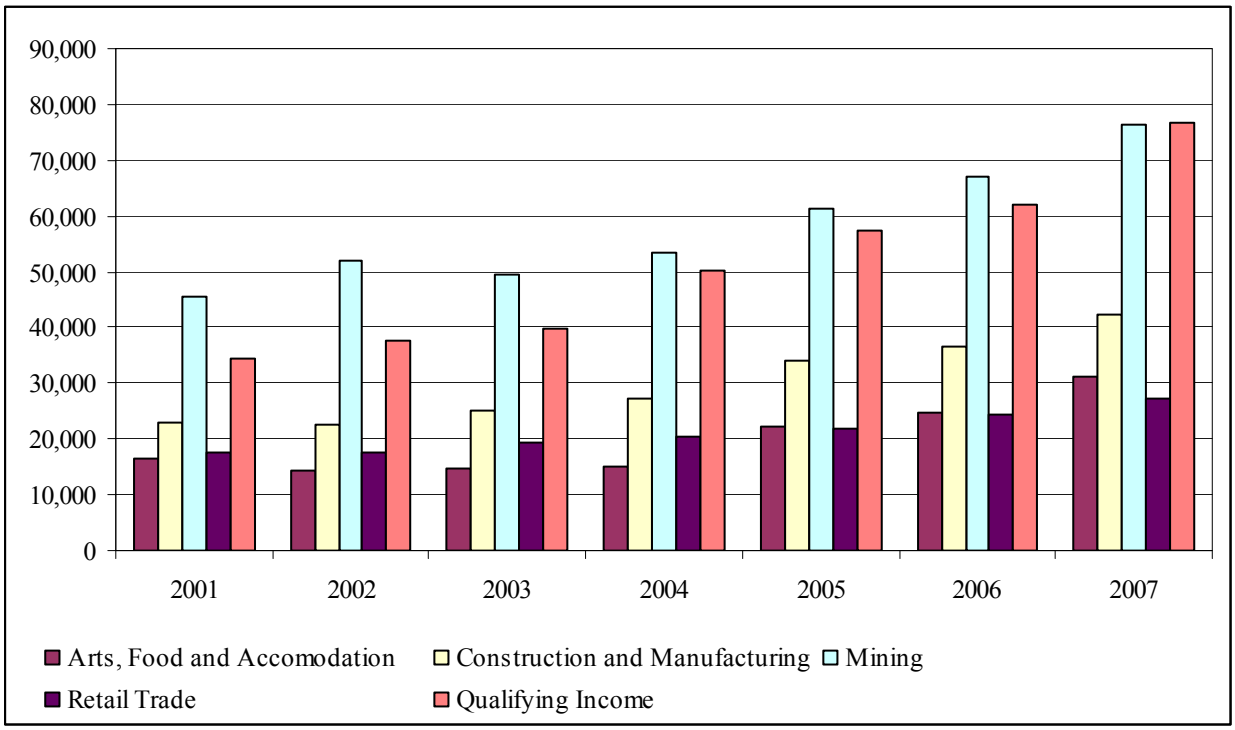

Figure 7-2 Sublette County average annual income by sector and minimum qualifying income to purchase average home (Wyoming Community Development Authority 2009)

7.1.2 Average Rental Prices

The Wyoming Community Development Authority conducts semi-annual surveys on housing trends in the state, including data collection of rental prices in each county. Rental units are categorized as homes, apartments, mobile home lots, and homes on a mobile home lots. Table 7-3 shows historical information on Sublette County rental prices between 1998 and 2008. In contrast to home prices, 2003 was not as significant a turning point in rental rates in Sublette County. Rental rates for houses increased to a greater degree than the remaining categories, but the overall trend shows a much flatter rise than the average sale price of homes.

Table 7-3 Average rental prices in Sublette County (Wyoming Community Development Authority 2009)

Reporting Period	Apartment	Mobile Home Lot	House	Mobile Home on a Lot
1998-1	$387	$150	$546	$415
1998-2	$501	$150	$575	$365
1999-1	$425	$150	$588	$338
1999-2	$463	$175	$581	$371
2000-1	$433	$175	$624	$435

Reporting Period	Apartment	Mobile Home Lot	House	Mobile Home on a Lot
2000-2	$464	$165	$566	$325
2001-1	$455	$165	$608	NA
2001-2	$441	$175	$613	$350
2002-1	$472	$200	$611	NA
2002-2	$534	$165	$655	$457
2003-1	$520	$200	$769	$472
2003-2	$611	$200	$794	$548
2004-1	$647	$225	$808	$624
2004-2	$765	$240	$888	$600
2005-1	$699	$240	$882	$590
2005-2	$728	$275	$1,083	$595
2006-1	$781	$265	$1,195	$643
2006-2	$750	$275	$1,238	$693
2007-1	$822	$275	$1,338	$667
2007-2	$860	$275	$1,387	$674
2008-1	$872	$275	$1,390	$675
Percent Change 1998(1)–2008(1)	125.32%	83.33%	154.58%	62.65%
Percent Change 1998(1)–2003(1)	34.37%	33.33%	40.84%	13.73%
Percent Change 2003(1)–2008(1)	67.69%	37.50%	80.75%	43.01%

7.1.3 Building Permit Trends

Residential construction has increased since 2000, as demonstrated by the increased number of residential building permits issued in Sublette County between 2000 (54 permits) and 2007 (263 permits). Residential permits are subdivided into the following categories: single family, duplex, tri- and fourplex, and multiplex (greater than four aggregate dwellings). Historical trends in building permits are summarized in **Error! Reference source not found.**. As illustrated, the greatest increase occurred in the single family category with 613 permits issues between 2005 and 2007. However, the number of building permits decreased over 60% between 2007 and 2008. Applications for building permits can increase when housing prices are high, often as a response to housing shortages. The decrease in building permits could indicate a decrease in the housing shortage (Meyers 2009).

Table 7-4 Building permits in Sublette County (Sublette County Planning and Zoning 2008; U.S. Census Bureau 2009)

Year	Single-Family Permits	Duplex Permits	Tri- and Fourplex Permits	Multiplex Permits	Total Residential Permits	Annual Percentage Increase in Residential Permits
2000	54	0	0	0	54	
2001	72	4	0	0	76	40.74%
2002	74	6	8	0	88	15.79%
2003	79	4	8	0	95	7.95%
2004	77	12	4	0	93	-2.11%
2005	179	0	0	6	185	98.92%
2006	177	0	0	20	197	6.49%
2007	257	6	0	0	263	33.50%
2008	100	2	3	0	105	-61.09%

7.1.4 Rental Vacancy Rates

In recent years, the Sublette County housing market has had a low vacancy rate for rental units compared to the state of Wyoming. As part of its semi-annual survey, the Wyoming Community Development Authority collects data on rental vacancy rates throughout the state. Rental units are defined as homes, apartments, mobile home lots, and mobile home lots with homes. Table 7-5 shows the vacancy rates for 2000–2008.

Table 7-5 Rental vacancy rates in Sublette County and Wyoming (Wyoming Community Development Authority 2009)

Reporting Period	Sublette County Vacancy Rates	Wyoming Vacancy Rates
2001-1	4.88%	4.21%
2001-2	NA	4.36%
2002-1	NA	4.73%
2002-2	5.41%	4.62%
2003-1	4.00%	3.56%
2003-2	3.64%	4.10%
2004-1	1.69%	3.81%
2004-2	5.33%	4.81%
2005-1	4.17%	3.30%
2005-2	4.55%	3.51%
2006-1	1.89%	2.67%
2006-2	0.64%	2.44%
2007-1	2.29%	1.45%
2007-2	0.90%	1.81%
2008-1	2.84%	2.89%
2008-2	3.44%	3.93%

7.1.5 Housing Projections and Estimates

In February 2008, Collins Planning Associates (Collins) released a report which assessed current housing conditions in Sublette County. Based on their analysis, Collins predicts that the lack of available housing in the county is near its peak. BLM-supplied data on actual and projected rig counts suggested, to Collins, that 2011 would be the peak year for drilling activity with an active rig count of 71. BLM projections indicate a decrease in rig counts from that point, with fewer than five active rigs in 2024. As discussed in Chapter 2, the drilling activity in oil and gas development is the most labor intensive phase and has the greatest impact on population. ERG agrees with Collins' conclusion that drilling rates directly affect population trends. Therefore, the best way to anticipate population impacts is for local governments to routinely query oil and gas operators regarding projected short- and long-term drilling activities.

7.2 EDUCATION

7.2.1 School District Enrollment and Capacity

Sublette County is served by two school districts: Sublette No. 1, located in Pinedale and Bondurant and Sublette No. 9, located in Big Piney and La Barge. Both districts have four schools (high school, middle school, and two elementary schools) with one of the elementary schools located outside of the major population centers and the other schools located within the major population centers. Between 2000 and 2009, both districts have seen increased enrollment and staffing needs as well as decreased facilities capacity.

According to Sharon Ziegler, Executive Secretary to the Superintendent of District No. 1, in 2009 the school district had 240 new students, which is 24% of the school district's enrollment of 1,010 students. In the past four or five years, they have had an annual turnover of 40 to 50 students, up from 30 students in the early 2000s. The school district currently has eleven Spanish-speaking students; five years ago they had none. District No. 9 has seen an increase of 300% in non-English speaking students and has hired three full-time English language literacy positions to address this need (Anschutz 2007).

School District No.1's elementary, middle, and high school each has a capacity of 320 students. Both the middle school and high school have a count of just under 320 students (Seipp 2009). The elementary school, however, currently has over 500 students, and the 5th and 6th grades have been moved into temporary buildings. The school district has contracted to create an 81,000 square foot elementary school, which is expected to begin construction in June or July of 2009 and is scheduled to open in

September 2010. The square footage and capacity of District No. 1 facilities is shown in Table 7-6. District No. 9 did not provide this information despite repeated requests.

Table 7-6 School District No. 1 square footage and capacity (Seipp 2009)

School	Square Footage	Capacity
Elementary School	47,000	320
Middle School	52,000	320
High School, Auditorium, and Administration Building	89,000	320
Wrangler Gymnasium	45,000	NA

Table 7-7 shows historical enrollment figures for Sublette County school districts. Between 1991 and 1999, student population exhibited relatively flat increases and/or decreases. District No. 1 enrollment increased approximately 6%, while District No. 9 showed the opposite trend with a 6% decrease. Student counts began to show a sharper rise in 2000. By 2007, District No. 1's enrollment had risen approximately 47% with District No. 9 showing a smaller, but substantial, increase of nearly 20%.

Table 7-7 Sublette County school district enrollment history (Wyoming Department of Education 2008)

Year	District No. 1 Enrollment	Annual Percent Change	District No. 9 Enrollment	Annual Percent Change
1991	592	NA	640	NA
1992	602	1.69%	638	-0.31%
1993	651	8.14%	652	2.19%
1994	676	3.84%	702	7.67%
1995	676	0.00%	682	-2.85%
1996	641	-5.18%	655	-3.96%
1997	642	0.16%	669	2.14%
1998	637	-0.78%	655	-2.09%
1999	627	-1.57%	604	-7.79%
2000	639	1.91%	569	-5.79%
2001	630	-1.41%	587	3.16%
2002	671	6.51%	571	-2.73%
2003	689	2.68%	592	3.68%
2004	701	1.74%	592	0.00%
2005	767	9.42%	617	4.22%
2006	841	9.65%	646	4.70%
2007	940	11.77%	680	5.26%
Change 1991–1999	35	5.91%	-36	-5.63%
Change 2000–2007	301	47.10%	111	19.51%

School district staffing has increased with the number of new students in the county. As shown in Table 7–8, District No. 1's staffing increased by 24% and District No. 9's increased by 11% between 2000 and 2007. State-wide staffing increases were 5% during a similar time-frame.

Table 7-8 Sublette County Instructional staff by district (FTE) (Wyoming Department of Education 2008)

Year	District No. 1	District No. 9	State-wide
2000	63.4	70.5	9,803.6
2001	73.0	70.3	9,829.6
2002	70.0	75.0	9,979.6
2003	70.5	71.3	10,055.7
2004	68.8	74.2	9,985.2
2005	73.6	73.4	10,087.3
2006	80.0	86.1	10,300.3
2007	78.5	78.5	NA*
% Change 2000–2007	23.82%	11.35%	5.07%

*Not available

7.2.2 School Valuation and Budget

Like other social services, the increased population from oil and gas development stresses Sublette County's school districts. However, in many ways the presence of the oil and gas industry has also positively affected Sublette County's school districts. Increased enrollment creates more jobs, increases job security, utilizes facilities more fully, and can create a more diverse population. Moreover, energy production has increased the tax base in Sublette County, especially in District No. 1, which contains the Jonah and Pinedale Anticline fields. Between 1995 and 2007, Wyoming as a whole saw a 166% increase in total district assessed valuation (the value assigned to property for use in tax calculations), but this increase is overwhelmed by the more than 1,045% increase seen in Sublette District No. 1 for the same time-frame (Table 7-9).

Table 7-9 Assessed valuation for Sublette County by school district (Wyoming Department of Education 2008)

Year	District No. 1	District No. 9	State-wide
1995	$154,289,846	$162,659,154	$6,231,800,000
1996	$140,778,407	$112,594,535	$6,423,400,000
1997	$165,691,195	$158,929,276	$7,145,900,000
1998	$235,102,441	$209,452,411	$7,441,500,000
1999	$246,445,300	$194,884,240	$7,025,500,000
2000	$303,349,383	$240,483,089	$7,896,900,000
2001	$547,481,173	$411,597,321	$10,542,100,000
2002	$741,509,427	$449,236,435	$11,169,300,000

Year	District No. 1	District No. 9	State-wide
2003	$709,120,432	$277,780,164	$10,340,000,000
2004	$1,655,510,817	$487,860,020	$13,679,500,000
2005	$2,390,969,127	$676,213,100	$16,445,000,000
2006	$3,788,604,732	$800,720,001	$20,978,700,000
2007	$3,475,556,647	$765,598,659	$21,491,267,438
% Increase 1995–2000	96.61%	47.84%	26.72%
% Increase 2000–2007	1,045.73%	218.36%	172.15%

This larger tax base is directly reflected in district general fund revenues from local, county, state, and federal sources, as seen in Table 7-10.

Table 7-10 Total Sublette County general fund revenues from local/county/state/federal sources by school district (Wyoming Department of Education 2008)

Year	District No. 1	District No. 9	State-wide
2000	$7,971,133	$6,466,289	$660,610,023
2001	$3,193,583	$4,329,430	$664,657,985
2002	$10,656,932	$7,188,453	$717,117,801
2003	$11,406,847	$7,959,120	$768,273,957
2004	$10,889,071	$6,349,572	$759,619,270
2005	$20,608,469	$11,872,933	$840,452,300
2006	$29,550,743	$15,434,603	$898,107,584
2007	$45,512,992	$19,663,401	$1,115,203,990
% Increase 2000–2007	471%	204%	69%

Of particular interest to Sublette County government is the increase in general fund expenditures for both districts. Compared to a state-wide increase of only 65%, school district expenses in Sublette County experienced triple-digit increases from 2000–2007. This information is presented in Table 7-11 below.

Table 7-11 Sublette County general fund expenditures by school district (Wyoming Department of Education 2008)

Year	District No. 1	District No. 9	State-wide
2000	$5,701,686	$5,369,907	$661,500,425
2001	$5,581,358	$5,918,867	$673,591,640
2002	$8,355,265	$7,591,107	$724,206,123
2003	$13,721,364	$8,213,946	$750,746,628
2004	$11,292,016	$7,149,790	$756,193,461
2005	$16,968,439	$8,548,722	$803,732,619
2006	$31,136,408	$12,048,771	$907,392,493
2007	$47,001,426	$24,114,226	$1,093,446,068
% Increase 2000–2007	724%	349%	65%

7.2.3 Amendment B

Until November 2006, both districts in Sublette County were extremely well-funded. Wyoming law permitted districts to keep 25% of excess special school district property tax revenues each year while returning 75% to the state. In 2005, Pinedale retained $14.2 million, and Big Piney retained $4.1 million. Pinedale put this money directly into technology purchases (Gruver 2006). Each 5th grade student received a new laptop, and all classroom teachers now have a Smart Board$_{TM}$ and projector in their rooms. In 2006, Pinedale retained approximately $22 million, which was earmarked for a new aquatic center and a middle school expansion project (Gruver 2006).

The general election in November 2006 brought about a tremendous funding change for districts rich in natural gas production. Amendment B to the constitution required that all excess funding be returned to the state for redistribution to other districts. However, existing state statue 21-13-102(c), which permitted districts to retain 25% of excess funding, was not modified or repealed at that time. To resolve this conflict, the 2008 state legislature enacted Senate File 54 which accomplished two things: it repealed 21-13-102(c) thus permitting the state to take possession of all excess funds; and it made the capture of excess funds retroactive to encompass the 2006–2007 and 2007–2008 school years.

Both Sublette County school districts, in addition to school districts in Campbell, Fremont, and Lincoln counties, were part of a lawsuit against the State Superintendent of Public Instruction over repayment of the 2006–2007 and 2007–2008 monies. The State Supreme Court sided with the school districts and ruled that the districts were entitled to retain excess revenues from 2006–2008 (Wyoming State Law Library 2008). However, with the start of the 2008–2009 school year, all excess revenues are subject to the provisions of Senate File 54 and are returned to the state.

In the future, the districts will have to rely on local levies to increase budgets above the currently legislated education levies of six mills per county, 25 mills per district, and 12 mills state-wide. With continued natural gas production expected for the foreseeable future, losing the excess revenues may leave Sublette County school districts in a poor position to deal with expected increases in the student population.

7.3 ROADS AND TRANSPORTATION

Increased traffic is a state-wide matter in Wyoming but is of particular concern in Sublette County due to unprecedented growth. Overall traffic in Sublette County increased 86% between 2000 and 2007, while travel in Wyoming increased 19% over the same time period. This section investigates the impacts of natural gas development on transportation volume, road safety, and road conditions in Sublette County.

7.3.1 Traffic Patterns

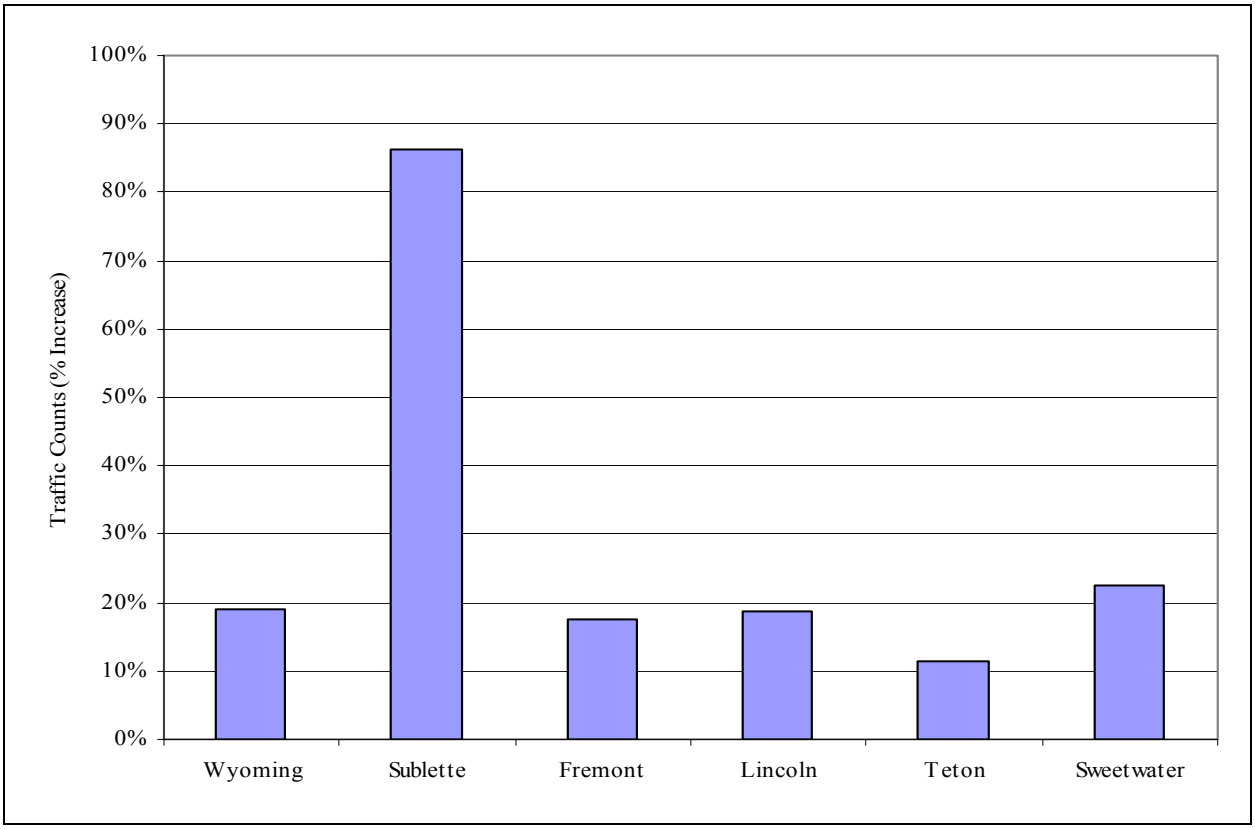

Figure 7-3 Percent increase in traffic counts from 2000–2007, state-wide and by county (Wyoming Department of Transportation 2008)

The disparity between the state-wide and Sublette County traffic increases is evident when comparing Sublette to surrounding counties. While Sublette County's traffic counts rose 86% from 2000 to 2007, surrounding counties' traffic counts escalated at rates similar to Wyoming, ranging from 11% in Teton County to 23% in Sweetwater County. Figure 7-3 above illustrates Sublette County's traffic percent change compared with surrounding counties and the state of Wyoming.

Automobile accidents have increased with traffic in Sublette County. Figure 7-4 describes the number of accidents and the percent change in accidents for the county. Between 1995 and 2007, traffic accidents have more than doubled. Of the accidents in 2007, 2% resulted in death and 26% resulted in injury (Wyoming Department of Transportation 2009).

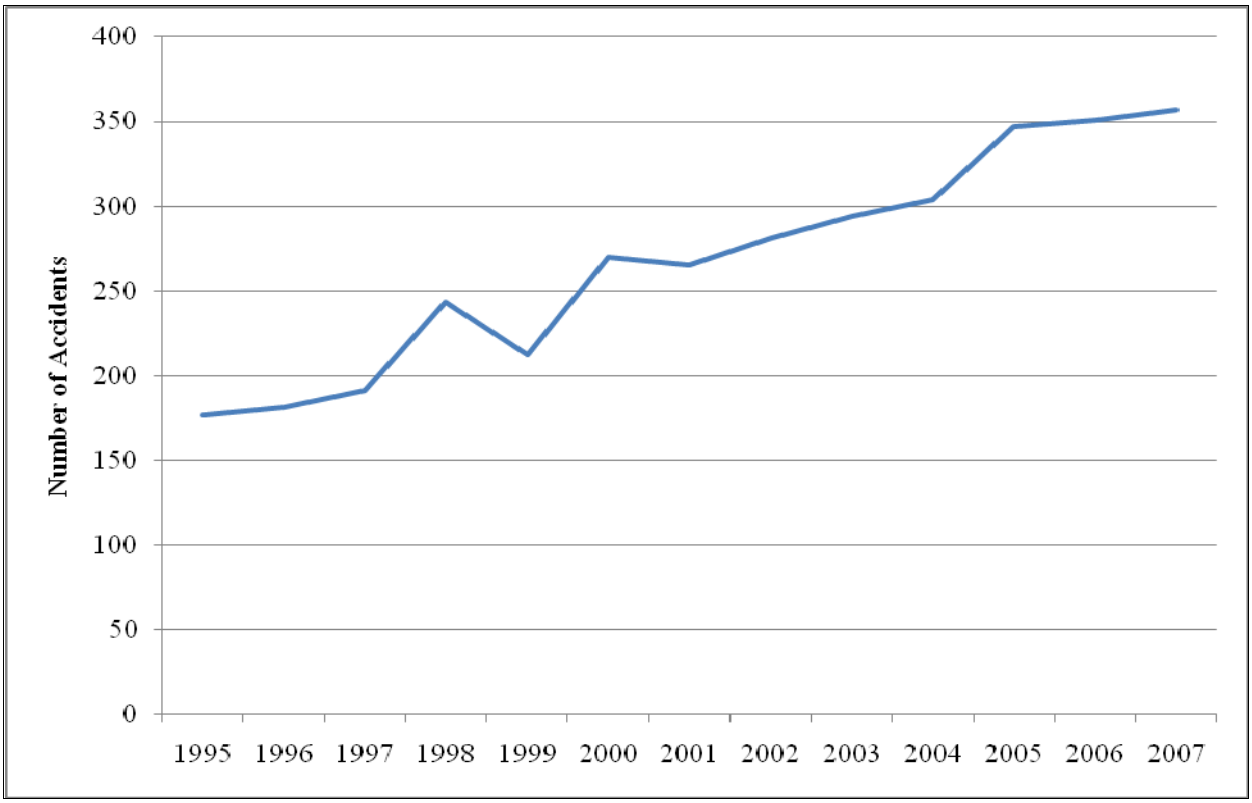

Figure 7-4 Vehicle-related accidents in Sublette County, 1995–2007 (Wyoming Department of Transportation 2009)

WYDOT data from 50 traffic counters across Sublette County show traffic increasing by 993 vehicles per day overall during the past five years (Wyoming Department of Transportation 2007). Figures 7-5, 7-6, and 7-7 show changes in traffic counts from 2000 to 2007 at specific locations across Sublette County and into adjacent counties. Vehicle traffic increased noticeably toward the central and southern portion of the county. The largest concentration of traffic occurs within the same proximity as the concentration of

wells. Data is separated into big truck traffic and all other vehicles, with a big truck defined as any vehicle larger than a standard pickup.

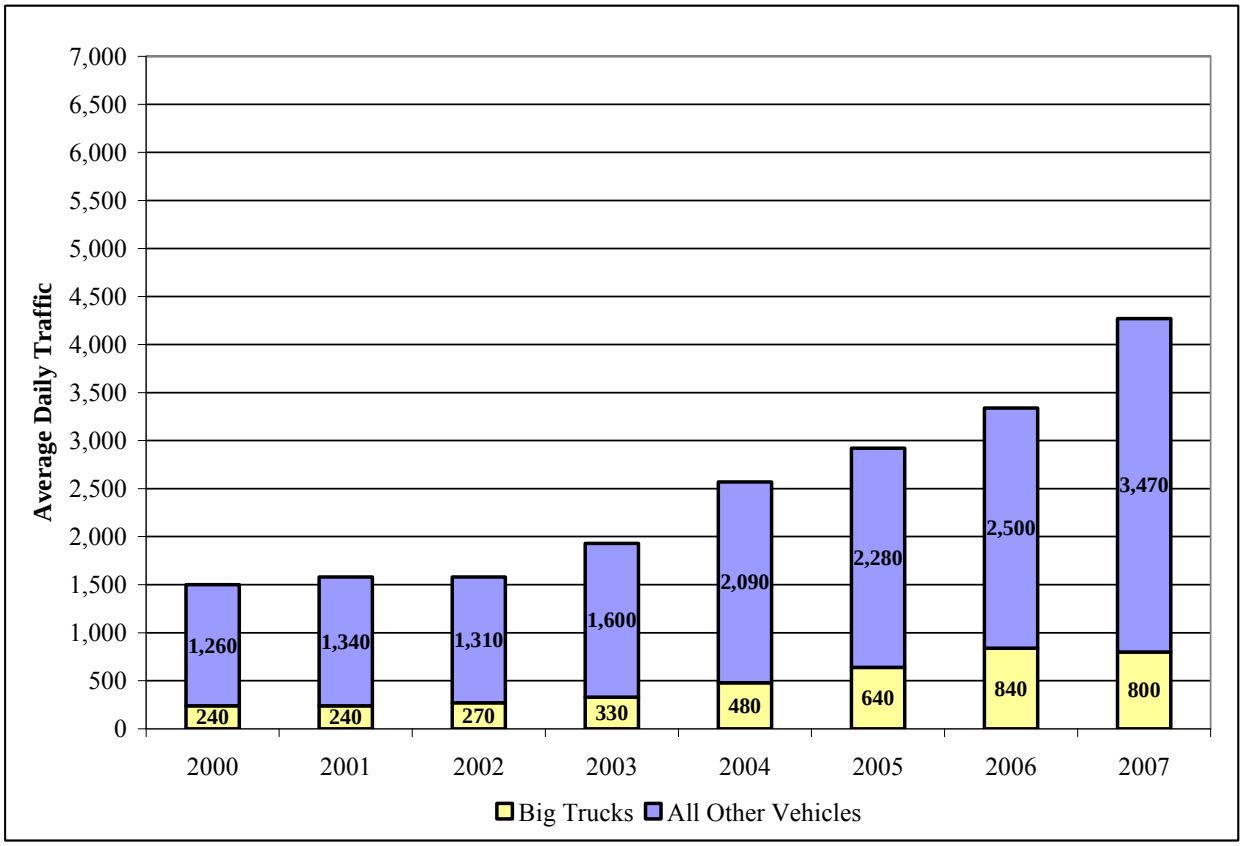

Figure 7-5 Average daily traffic—Sublette/Sweetwater County line, Highway 191 (Wyoming Department of Transportation 2008)

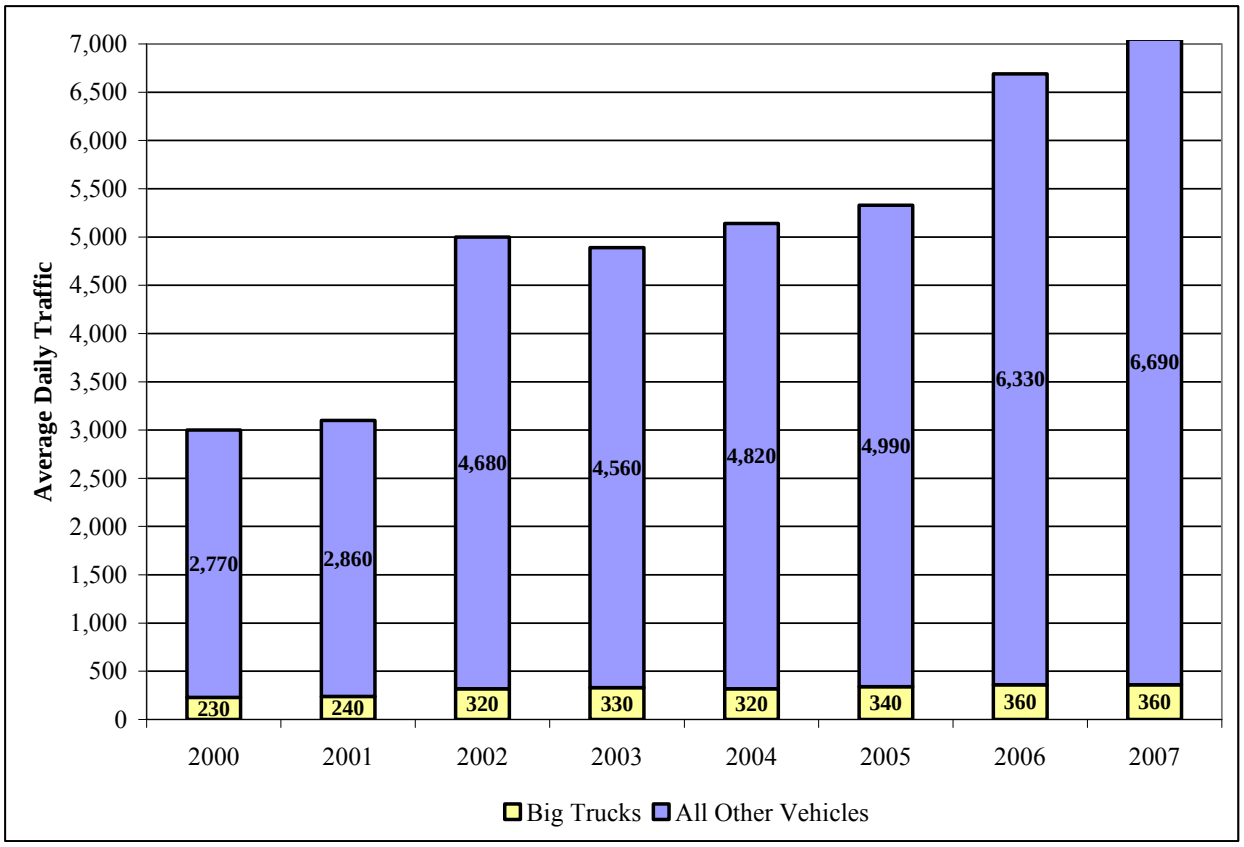

Figure 7-6 Average daily traffic—NW Pinedale town limits, Highway 191 (Wyoming Department of Transportation 2008)

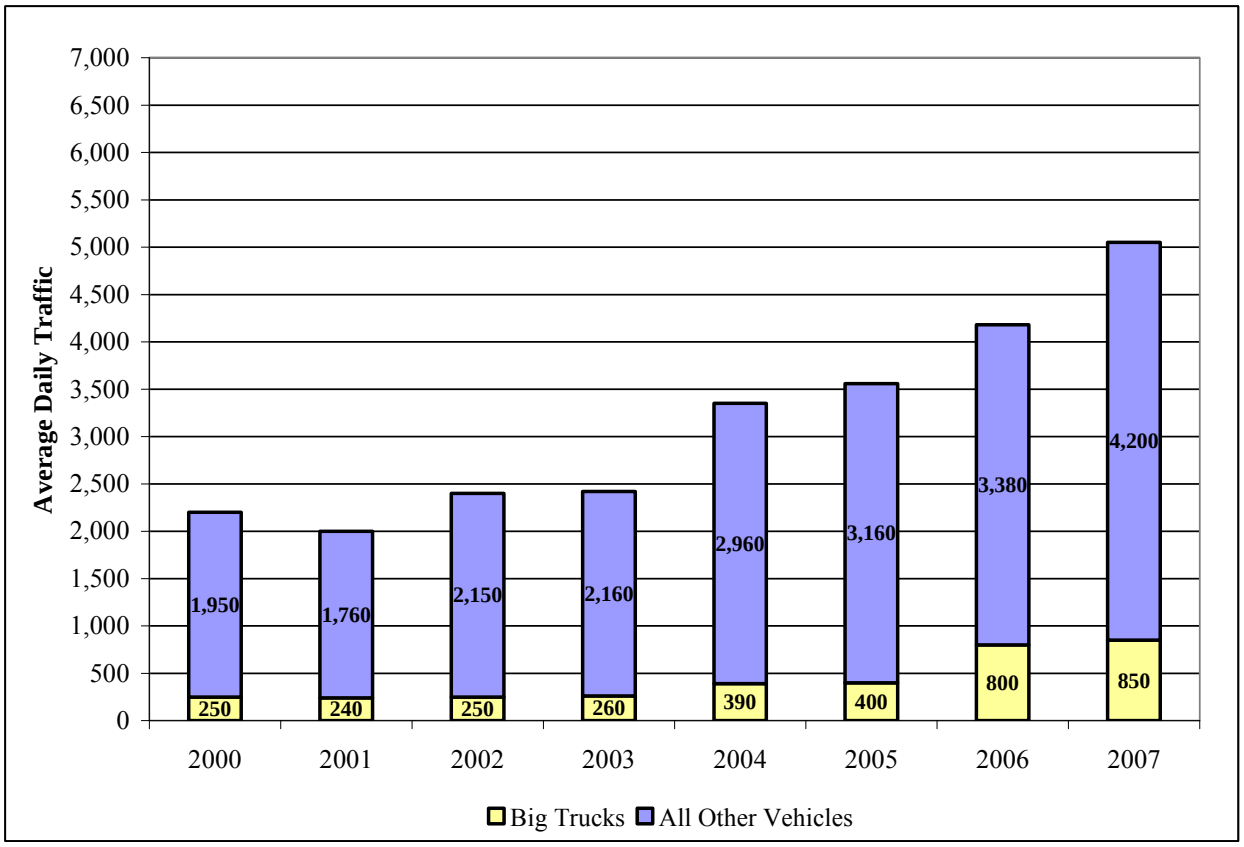

Figure 7-7 Average daily traffic—southern Big Piney town limits, Highway 189 (Wyoming Department of Transportation 2008)

Truck traffic at Big Piney's southern town limit has increased 240% since 2000. Pinedale truck traffic has not risen as much, but total traffic counts at Pinedale's northwest town limit have grown 104% over the same time period. As a result of the traffic, road improvement needs have increased. Sublette County's most pressing road improvement projects are Calpet Highway and Dry Piney Road, which total 32 miles. Traffic on the Calpet Highway and Dry Piney Road has increased since 2000, turning them into high-use roads with an accelerated need for maintenance. A substantial number of vehicles travel these roads annually, with 20% of this traffic being larger than a pickup. Figure 7–8 shows the percentage change in vehicle traffic for several points in and near Sublette County between 2000 and 2007. Traffic in Pinedale and areas south increased 95% to 137% during this period.

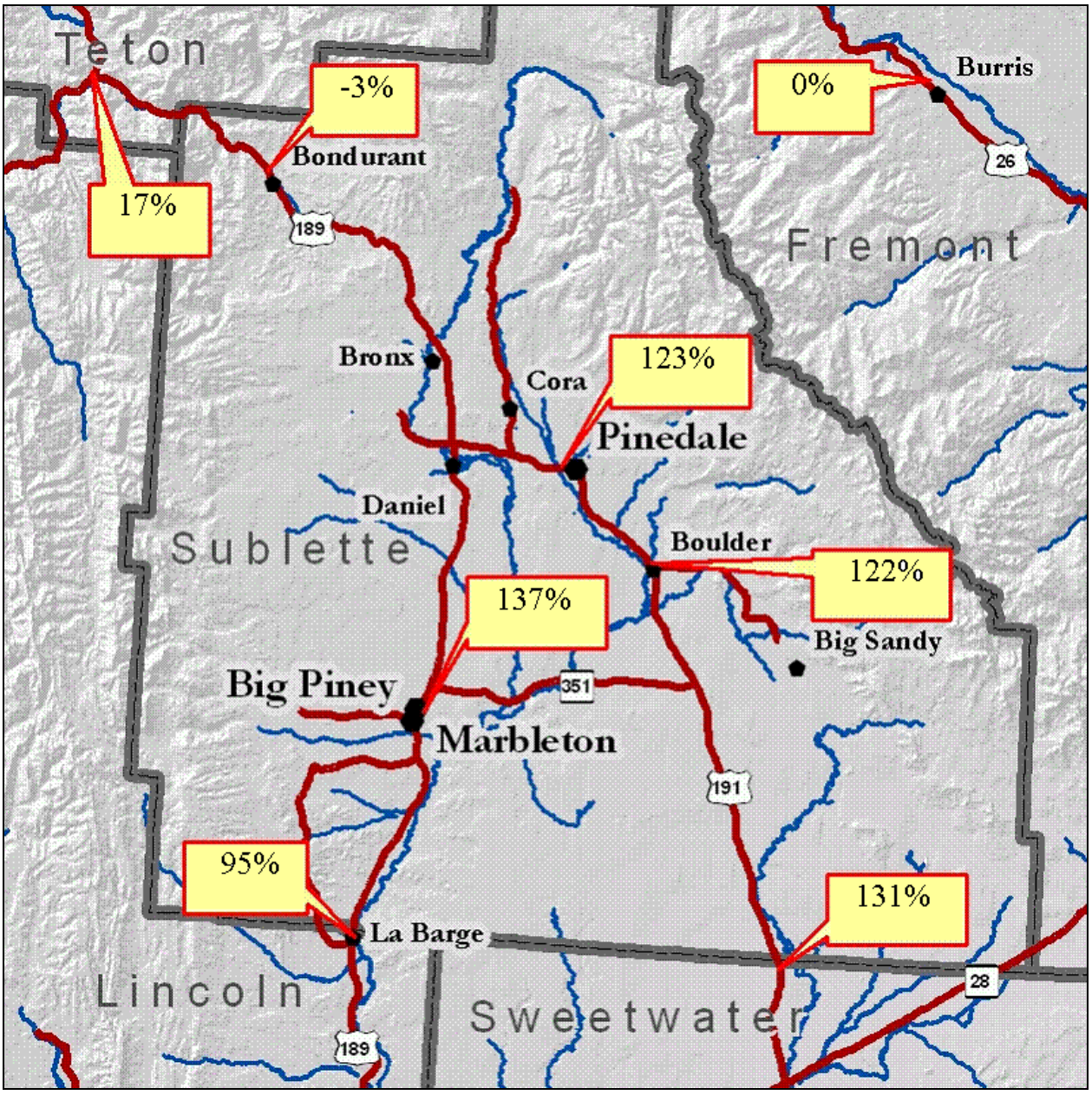

Figure 7-8 Percent increase in traffic, 2000–2007 (Wyoming Department of Transportation 2008)

7.3.2 Upcoming Road Projects within Sublette County

Big Piney, Marbleton, Pinedale and Sublette County have projected their road improvement projects through the next few years and estimate their costs at $4.3 million, $5.8 million, $22 million, and $55.4 million, respectively. The total cost for county and municipal projects is $87.5 million (Table 7-12).

Table 7-12 Projected road project costs for Sublette County and municipalities

Year	Big Piney	Marbleton	Pinedale	Sublette County	Total
2009–2010	$2,478,835	$413,406	$6,602,000	$41,600,000	**$51,094,241**
2010–2011	$1,772,400	$0	$5,182,000	$600,000	**$7,554,400**
2011–2012	Not planned	$2,685,894	$4,544,000	$12,000,000	**$19,229,894**
2012+	Not planned	$2,735,512	$5,675,000	$1,200,000	**$9,610,512**
Total	**$4,251,235**	**$5,834,812**	**$22,003,000**	**$55,400,000**	**$87,489,047**

The average life expectancy for an asphalt road is 20 years, even though some are still in service after 40 years. Roads can deteriorate faster with more traffic and harsh weather (Dixon 2009).

7.4 CRIME AND LAW ENFORCEMENT

Historically, the crime rate in Sublette County has been low when compared with the rest of the nation. However, crime has been rising in the last few years. Index crimes are used to determine the crime rate for an area. As described in the Unified Crime Report, "The offenses which comprise the Crime Index are all serious, either by their nature or by the frequency with which they occur, and each presents a common law enforcement problem" (U.S. Department of Justice 2006). From 2000 to 2007, total index crimes in Sublette County increased by 44%. Crimes within the index are classified as violent crimes (murder, forcible rape, robbery, and aggravated assault) or property crimes (burglary, larceny-theft, and motor vehicle theft.

Violent index offenses, including murder and non-negligent manslaughter, forcible rape, and aggravated assault, increased from two in 2000 to 17 in 2007. Property index offenses remained relatively stable, even slightly decreasing, with 25 offenses in 2000 and 22 in 2007. Table 7-13 below compares the number of offenses committed by adults and juveniles in 2000 and 2007.

Table 7-13 Adult and juvenile offenses, 2000 and 2007 (U.S. Department of Justice 2007)

Classification of Offense	2000 Adult	2000 Juv.	2007 Adult	2007 Juv.
Murder and Non-Negligent Manslaughter	0	0	0	0
Forcible Rape	0	0	2	0
Robbery	0	0	0	0
Aggravated Assault	1	1	14	1
Burglary	6	3	7	1
Larceny-Theft	9	4	10	1

Classification of Offense	2000 Adult	2000 Juv.	2007 Adult	2007 Juv.
Motor Vehicle Theft	3	0	2	1
Total Index Offense Arrests	**19**	**8**	**35**	**4**
Manslaughter by Negligence	0	0	0	0
Arson	1	0	0	0
Other Assaults	33	0	43	5
Forgery and Counterfeiting	0	0	0	0
Fraud	9	0	5	0
Embezzlement	0	0	0	0
Stolen Property; Buy, Receive, Possess	0	0	0	0
Vandalism	5	0	2	0
Weapons; Carry, Possess, etc.	0	0	0	0
Prostitution and Commercialized Vice	0	0	0	0
Sex Offenses (Except Rape and Prostitution)	2	0	1	0
Drug Abuse Violations	14	1	40	0
(1) Sale/Manufacture Subtotal	0	0	5	0
(2) Possession Subtotal	14	1	35	0
Gambling Offenses	0	0	0	0
Offenses Against Family and Children	1	0	6	0
Driving Under the Influence	63	0	95	0
Liquor Laws	28	2	63	11
Drunkenness	3	0	6	0
Disorderly Conduct	0	0	4	0
Vagrancy	0	0	0	0
All Other Offenses (Except Traffic)	52	1	177	3
Suspicion	0	0	0	0
Curfew and Loitering Law Violations	NA	0	NA	0
Run-Aways	NA	0	NA	2
Total Arrests by Age Group	**244**	**13**	**517**	**25**
Total Arrests by Year	**257**		**542**	

The number of juvenile arrests rose 92% from 2000 to 2007. According to Dayle Read-Hudson of Pine Creek Family Counseling in Pinedale, the last few years have produced more accounts of children bearing witness to violent crimes. Total arrests in Sublette County increased by 111% between 2000 and 2007. The county added 15 law enforcement officers between 2000 and 2006, but because of the increased arrest rate the number of major arrests per officer stayed constant at around 13.

The Circuit Court data tell a similar story but in a different way (Table 7-14 and Table 7-15). The court groups its cases in two categories, citations and non-citations. Citations involve "tickets" given by an officer, while non-citations are actual charges brought by the county prosecutor. Therefore, the non-citation cases are more serious. Data for 2007 on citations and non-citations were available only through June 30; however, total non-citations through June 2007 were already 89% of the total non-citations for 2006. DUI non-citations for the first half of 2007 surpassed the DUI non-citations for all of 2006. For circuit court citations, traffic citations have seen the greatest increase, from 28 in 2000 to 3,787 in 2006.

Table 7-14 Circuit court citation totals (Boynton et al. 2007)

Year	DUI	Felony	Game & Fish	Other	Traffic	Total
2000	16	1	2	11	28	58
2001	24	9	3	30	49	115
2002	49	5	57	115	760	986
2003	20	9	82	114	2,883	3,108
2004	17	6	100	104	2,726	2,953
2005	20	0	122	98	3,055	3,295
2006	50	3	131	231	3,815	4,230
2007*	3	3	26	65	1,982	2,079
Total Change 2000–2006	34 (213%)	2 (200%)	129 (6,450%)	220 (2,000%)	3,787 (13,525%)	4,172 (7,193%)

* 2007 numbers through June 30, 2007

Table 7-15 Circuit court non-citation totals (Boynton et al. 2007)

Year	DUI	Felony	Game & Fish	Other	Traffic	Total
2000	2	3	3	30	11	49
2001	0	7	1	38	24	70
2002	8	23	0	84	58	173
2003	72	58	0	180	101	411
2004	104	47	18	170	99	438

Year	DUI	Felony	Game & Fish	Other	Traffic	Total
2005	111	63	1	260	126	561
2006	59	51	8	207	72	397
2007*	60	30	0	130	132	352
Total Change 2000–2006	57 (2,850%)	48 (1,600%)	5 (167%)	177 (590%)	61 (555%)	348 (710%)

* 2007 numbers through June 30, 2007

According to Curt Haws, Circuit Court judge, the Circuit Court of the Ninth Judicial District in Sublette County had 107 court events in April 2007 (a "court event" includes any formal appearance or activity in the courtroom). Of those 107 events, 65 (61%) involved people who work in the gas and oil fields. "This number does not include people that are working in jobs that support the energy industry—food, lodging, etc.—but only those who are working for one of the energy companies" (Haws 2007a). As an example, Figure 7-9 shows the relationship between oil and gas drilling (depicted by drilling rig counts) and traffic citations.

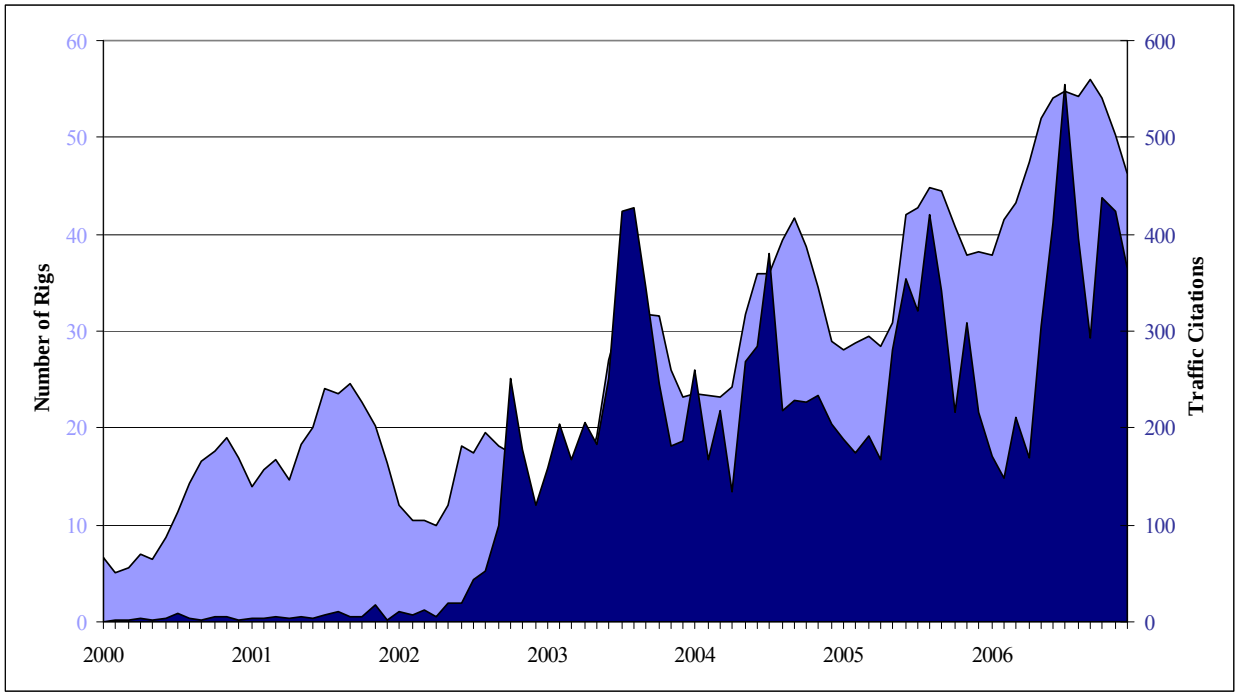

Figure 7-9 Rig counts correlated with traffic citations (Boynton et al. 2007; Sublette Community Partnership 2007)

The current capacity of the Sublette County jail is 52 individuals: 40 males, six females, and four juveniles, with an additional two beds in the isolation cells. In 2000, the average daily inmate population was 7.9 and increased to a daily average of 24.2 by 2005. In 2006, these numbers reduced to an average of 19.6. However, in April 2006, typically a slow time for incarcerations, the inmate population at the jail reached 40 people, more than 75% of its capacity. As the jail is not accredited for juveniles, this number does not include juveniles who cannot be held overnight (Johnston 2007). If the detention center reaches its maximum of 52 inmates, the county will have to house inmates out-of-county (incurring housing and transportation costs) or build an additional detention complex to increase their capacity. The 2008 inmate count showed a daily average population of 19.4. Figure 7-10 illustrates the average daily jail population from 2000 to 2008.

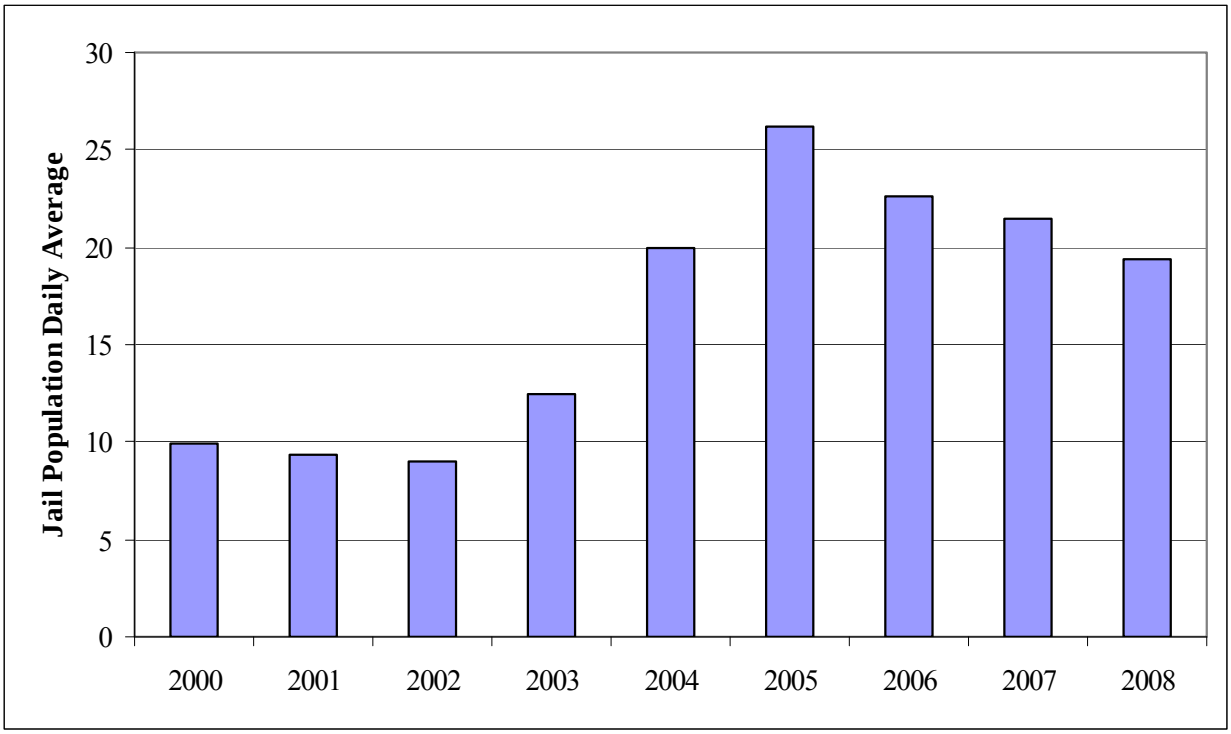

Figure 7-10 Daily average jail population (Johnston 2009)

7.5 MEDICAL SERVICES AND FACILITIES

With a population density of 1.2 people per square mile, Sublette County cannot reasonably support a hospital to serve such a low number of residents. Instead, the majority of county residents travel approximately 80 miles to St. John's Medical Center, a 52-bed hospital located in Jackson, Wyoming. For critical injuries, patients can be transported to larger hospitals in Utah, Idaho, Colorado, and Montana.

7.5.1 Clinics

Sublette County has experienced increased health needs in recent years as a result of a larger population. Prior to 2005, the county was served by two publicly funded medical clinics located in Pinedale and Marbleton-Big Piney. At 14,700 and 16,560 square feet respectively, the clinics were operated by private practice physicians. In May 2005, the Sublette County Rural Health Care District (District) took over operations of the Marbleton-Big Piney clinic at a cost of $2,570,293. In July 2006, the District acquired operation of the Pinedale clinic. The District's FY 2006–2007 costs totaled $7,103,848, which included clinic operating costs and salaries for physicians, nurses, administrative personnel, and ancillary personnel (Gatzke 2009).

As the county population continued to grow, Sublette County funded a new clinic to replace the existing clinic in Pinedale in 2007. The costs of equipping and supplying the clinic were taken on by the District; FY 2007–2008 District costs totaled $10,551,278 (Gatzke 2009).

In 2008, Sublette County funded a new clinic to replace the existing clinic in Marbleton, increasing the District's FY 2008–2009 budget to an estimated $12,558,008, not including emergency medical services (EMS) costs. Operating budgets include wages for 10 full-time administrative personnel and 44 full-time clinical workers. The District still needs additional technicians, but the positions remain unfilled (Gatzke 2009).

As the capacity of the District expands to meet increasing health care needs, monetary needs have risen. The District expects to receive $7,354,254 in mill levies from Sublette County in 2009 and is working to collect outstanding billings. The number of patients without health insurance has increased in tandem with oil and gas development (Gatzke 2009). Based on the current budget, the District expects a deficit of approximately $5 million for FY 2009-2010 (Gatzke 2009). Their deficit is composed of total revenues minus total expenditures. In 2008 and anticipated for 2009, the District supplemented their budget with cash reserves, which decreased from over $14 million in 2007 to an expected two million dollar balance in 2009 (Gatzke 2009). Figure 7-11 shows the District's income less expenditures from 2002–2009, which includes a deficit of $7,450,000 in 2009. Note that expenditures include operating and capital expenditures for both clinics and EMS.

Table 7-16 Sublette County Rural Health Care District net income (Gatzke 2009)

Year	Net Income
2002	$540,000
2003	$960,000
2004	$410,000
2005	$1,680,000
2006	$1,710,000

Year	Net Income
2007	$1,310,000
2008	-$2,880,000
2009	-$7,450,000

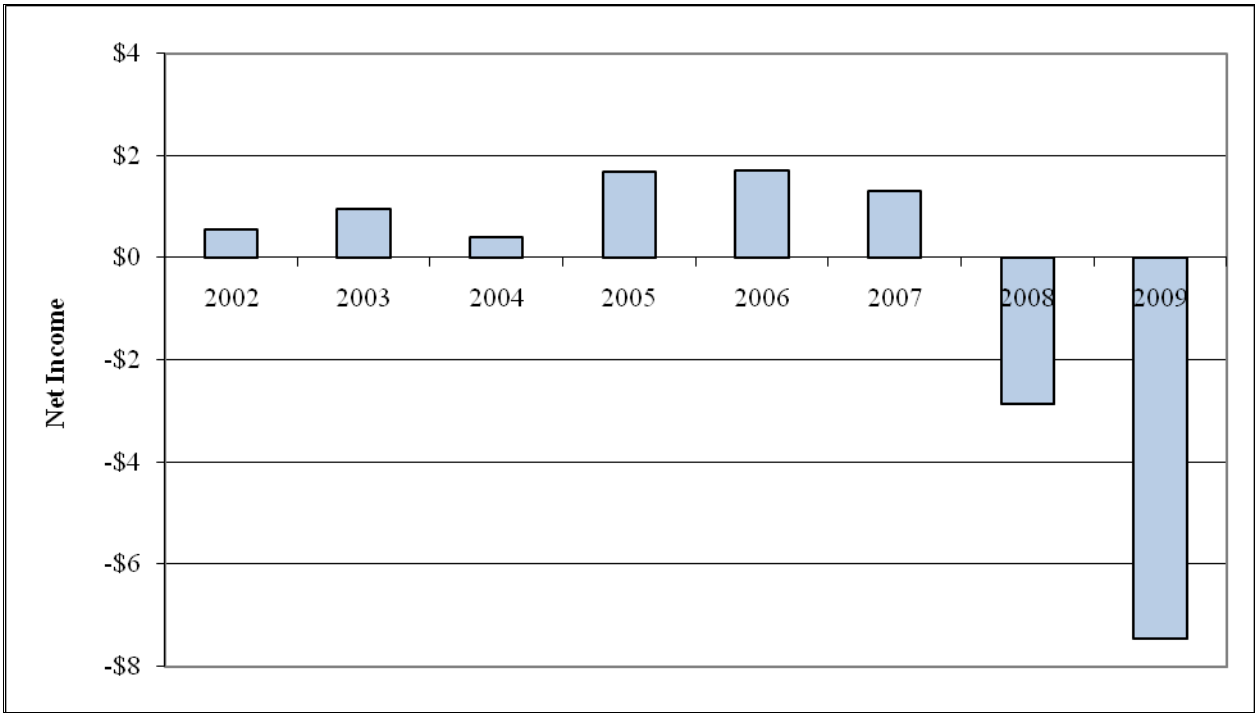

Figure 7-11 Sublette County Rural Health Care District net income (Gatzke 2009)

7.5.2 Emergency Medical Services (EMS)

District staffing needs continued to increase as EMS facilities expanded. Prior to 2001, the District consisted of two all-volunteer EMS units located in Pinedale and Marbleton, which were operating at full capacity. In March 2001, the District hired two full-time and one half-time emergency medical technicians in Pinedale and began the same program in Marbleton in July 2001. In October 2003, Pinedale added four full-time positions at their location, with Marbleton following suit in July 2004. In 2006, the District hired approximately 12 more full time EMTs. In October, 2007 the Sand Draw facility was built at a cost of $1.4 million (Gatzke 2009). The county contributed $500,000 and local industry paid $900,000 for the facility and necessary equipment (Gatzke 2009). The facility is open 24 hours a day to provide coverage for the Jonah gas field and South Anticline. The number of EMS runs has steadily increased through 2007, as illustrated in Figure 7-12 and Table 7-17.

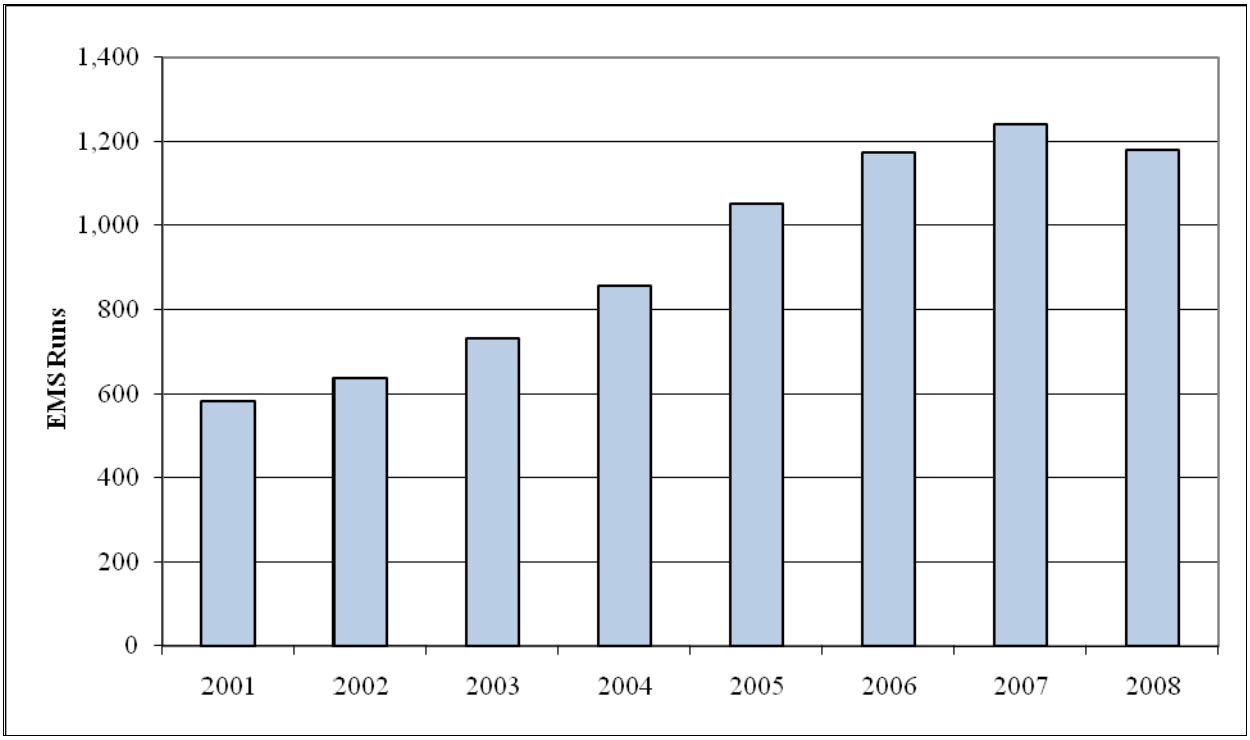

Figure 7-12 Total EMS runs in Sublette County 2001–2008 (Gatzke 2009)

Table 7-17 EMS Runs by Facility 2001–2008 (Gatzke 2009)

Year	Pinedale		Marbleton-Big Piney		Sand Draw	
	Total	% Change	Total	% Change	Total	% Change
2001	382	NA	199	NA	NA	NA
2002	415	8.64%	221	11.06%	NA	NA
2003	514	23.86%	218	-1.36%	NA	NA
2004	576	12.06%	280	28.44%	NA	NA
2005	717	24.48%	333	18.93%	NA	NA
2006	810	12.97%	364	9.31%	NA	NA
2007	824	1.73%	387	6.32%	29	NA
2001–2007 Change	442	115.71%	188	94.47%	29	NA
Average Annual Change	74	19.29%	31	15.75%	5	NA

Overall, it appears that medical services are financially stressed, largely in relation to the presence of the oil and gas industry, both from population increasing the number of patients and from the inherently dangerous nature of drilling gas wells (Gatzke 2009). The District has experienced, and will likely continue to experience, a growth in health-care needs.

7.6 WATER, SANITARY, AND SOLID WASTE

As population grows in relation to energy development, housing developments are increasing. As discussed in Section 7.1.3, residential housing permits have increased 387% since 2000 to accommodate new families in the area. Construction of new housing strains existing sewer and water systems and landfill capacity. As a result, the towns of Big Piney, Marbleton, and Pinedale have been forced to reevaluate their water, sewer, and landfill infrastructure.

Increased infrastructure needs are one of the most apparent effects of population growth in Sublette County. For example, Pinedale's existing sewer infrastructure is 80 years old and disintegrating. Current sewer and water lines are made of clay; they are cracked and broken throughout the system. All sewer and water lines within Pinedale will be replaced by 2014. At the same time, roads affected by these sewer and water projects will be repaired or resurfaced. In Marbleton, the existing sewer lagoon freezes during the winter and has been out of compliance with the State of Wyoming's Department of Environmental Quality standards for at least the past eight years. A new sewer lagoon has been designed and will be constructed in the near future. Directly to the south, Big Piney's water and sewer lines are 50 years old and made of cast iron. Lines are broken throughout the system and must be replaced. The town has already replaced all sewer lines and is in the process of replacing all water lines. At the same time, affected roads will be repaired or resurfaced. Table 7-18 lists the projected water and sewer projects for Sublette County municipalities with estimated costs.

Domestic and commercial water supplies are another area of concern. Two water towers serve the town of Marbleton and are the only source of water for energy operators in the area. One of Marbleton's two water towers is very old and structurally unreliable, requiring replacement. In addition, Marbleton recently drilled an additional well to provide domestic and commercial water but found fluoride levels in the new well unacceptably high. Treatment is required to remove the excess fluoride. The cost to drill a water well varies according to the depth of the well. A single water well of average depth and piping is estimated at $250,000 (Hurd 2009). That figure does not include the cost of a water tank, which ranges in price according to the size of the tank. An average 200,000 gallon tank costs $825,000 and can function with multiple water wells (Hurd 2009). In contrast to Marbleton, Pinedale's drinking water is obtained from Fremont Lake. The EPA requires all surface water used as a domestic or commercial water source to be filtered or otherwise treated for microbes (Environmental Protection Agency 2002). Addition of this treatment to the town's water distribution system is scheduled for 2010 at a cost of $3.8 million. In addition, Big Piney's two historic landfills must be monitored to maintain water quality.

Table 7-18 Water and sewer projects for Sublette County's municipalities (Town of Big Piney; Town of Marbleton; Town of Pinedale 2009)

Town	Project	Estimated Cost	Time Frame
Big Piney	Historic Landfills 1&2. Groundwater Monitoring (DEQ Mandated)	$125,000	Ongoing
Marbleton	Aerated Lagoon System with Power	$4,600,000	2009
Marbleton	Wind Turbines for Aerated Lagoon System	$500,000	2009
Marbleton	Main Water Line East to West	$497,000	2009
Marbleton	South Sewer Line Extension	$229,000	2009
Marbleton	Well House #7 Fluoride Treatment	$639,243	2009
Marbleton	50,000 Gallon Water Tower Replacement	$979,800	2010
Pinedale	Phase V Sewer	$7,491,037	2010
Pinedale	Phase VI Sewer	$8,924,640	2010
Pinedale	EPA-Mandated Water Treatment	$3,800,000	2010
Pinedale	Phase VII Sewer	$7,486,384	2011
Pinedale	Phase VIII Sewer	$7,694,490	2012
Pinedale	Phase IX Sewer	$6,111,828	2013
Pinedale	Water Meter System	$3,200,000	2013
Pinedale	Phase X Sewer	$2,755,689	2014
Pinedale	Sewer Lagoon Expansion	$4,500,000	2014
Pinedale	Water Meter System	$2,800,000	2014
Total		**$62,334,111**	

Finally, solid waste disposal services and facilities are struggling to meet the demands of county residents. Three waste service companies operate in Sublette County. One is new to the area, and the other two did not keep customer records before 2005. Colleen Grandsen, who owns and operates the BNC Trash Service in Pinedale with her husband, said, "Before now, there wasn't the need" (Grandsen 2007). However, since 1999 when they bought the business, the Grandsens have seen their customer base more than double. Today, BNC Trash Service cannot accommodate any additional customers. The company has added three new disposal trucks to its fleet since July 2006, however the Grandsens find hiring affordable workers to operate these trucks nearly impossible.

Before September 2004, complete records were not kept at the Sublette County landfill, which is located in Marbleton. As described in Table 7-19, waste tonnage measured from the Pinedale Transfer Station and from the surrounding areas ("all others") increased up to August 2007 and remained high through August 2008.

Table 7-19 Sublette County landfill tonnage per year (Hoffman 2008)

Year	Pinedale	All Others
Sept 2004–Aug 2005	4,385	7,991
Sept 2005–Aug 2006	5,224	8,603

Year	Pinedale	All Others
Sept 2006–Aug 2007	5,983	11,589
Sept 2007–Aug 2008	5,979	11,470

In February 2005, Nelson Engineering completed an annual cost analysis for the county landfill to aid in future planning. The report projected total volume for the landfill in 2005 at 36,463 tons. According to the County Materials Analysis Reports, the total tonnage from January 2005 through December 2005 exceeded the projections by 8,132 tons, 22% more than anticipated. The daily tonnage forecast in the Nelson analysis, based on six days a week, eight hours a day, was 114 tons. According to Rick Hoffman, Sublette County Waste Management Supervisor, the 2006 average daily tonnage was already 147 tons/day (Hoffman 2007).

In 2004, 2005, and 2006 combined, Sublette County recycled 941 tons of material, which included an increase of approximately 5% per year. In addition, Sublette Citizens for Recycling representative Marti Seipp estimates that approximately 200 tons worth of material could be recycled from oil and gas developments alone each year (Seipp 2007). According to Rick Hoffman, Sublette County Waste Management Supervisor, "There needs to be an increased effort in recycling and a major renovation of the Pinedale Transfer Station" (Hoffman 2007).

7.7 SOCIAL SERVICE PROJECTIONS

Medical, law enforcement, and waste management are just a few of the community services necessary to ensure public well-being and a good quality of life. Providing these services now and in the future requires assessing the current population, reviewing staffing and facilities needs, and anticipating future trends in these areas.

Projecting future needs in most areas of social service first requires defining the current load, or number of residents served per employee. In some cases the load is defined on a unit basis, such as number of detention beds, gallons of water, or cubic yards of landfill space. For example, there are six physicians practicing in Sublette County at the present time. The county has an estimated population of 8,750 residents in 2009, thus each physician has a current load of 1,458 patients. Assuming the current level of service is adequate, Sublette County will need 9.2 physicians in 2020 to meet the expected demands of 13,370 residents (Wyoming Department of Administration and Information 2009). Similar calculations are tabulated in Table 7-20 for medical and law enforcement services.

Table 7-20 Sublette County current and projected service needs (Ecosystem Research Group 2009; Gatske 2009)

Service	2009 FTE or unit of measure	Acceptable Load (2009)	2020 FTE Required or units anticipated
Physicians	6.0	1,458	9.2
Physician Assistants	2.0	4,375	3.1
Nurses	2.5	3,500	3.8
Dentists	3.5	2,500	5.3
Emergency Medical Technicians	13.0	673	19.9
EMS calls	1211.0	7	1,850.0
Sheriff's Office and Law Enforcement	80.0	109	122.3

7.8 QUALITY OF LIFE ISSUES

The social and cultural effects of the oil and gas industry on Sublette County are mixed, especially between areas of the county that have previously experienced oil and gas development and areas that have not. The customs and culture of mining industry newcomers are changing the complexion and history of the town of Pinedale and northern areas of the community, an area not accustomed to rapid growth from labor in-migration. The shift from a ranching- and recreation-based culture to a mining-based culture has been well documented in the national media (Clarren 2007; Kenworthy 2006; Ring 2005; Wilkinson 2005). In southern Sublette County, the recent increases in activity in the towns of Big Piney and Marbleton are more aligned with the existing cultural history of the area.

As natural gas development continues and gains intensity, these impacts can be expected to continue. Newcomers related to the gas industry will continue moving to the area until the development stage is completed. Correspondingly, anxiety from existing residents regarding population growth and planning is likely to continue. However, the initial "shock" of the cultural and economic changes to the area felt by residents will likely lessen as the development continues. Both current residents and newcomers will become more accustomed to one another as time passes. The series of community satisfaction surveys on the boom town of Delta, Utah found that the largest drop in community satisfaction occurred during the initial two years of growth, even though the majority of population growth was yet to occur (Brown et al. 2005). The researchers found that many of the residents may have been able to reconcile their feelings with the new and growing community over time (Brown et al. 2005).

At the conclusion of the development stage as the projects shift to production and fewer workers are required, many of the newcomers will likely migrate out of the region. The area will likely experience an economic downturn associated with the out-migration of temporary and permanent residents. This has the potential to decrease community satisfaction and social cohesiveness, depending on the severity of the

downturn. The study of Delta, Utah found that the second largest drop in community satisfaction occurred during the "bust" years, and community satisfaction did not return to pre-boom levels until nearly ten years after the bust, when the population remained relatively stable (Brown et al. 2005). The "busy-ness" of town will likely decrease, as fewer demands will be put on local service industry, accommodation, and government sectors. However, hundreds of long-term gas industry production jobs will remain in the area for the life of well production on the gas fields (through approximately 2065), and Sublette County's culture can be expected to reflect the residency of these workers and the prior influx in drilling activity.

8. MITIGATION STRATEGIES

8.1 SOCIOECONOMIC MONITORING INDICATORS

Western Wyoming is currently experiencing rapid economic growth, associated with the development of oil and gas resources. This document proposes a set of indicators to track social and economic change generated by oil and gas development. The monitoring plan outlined in this document is intended to provide an annual update to communities, local governments, and federal agencies interested in and involved with management of energy-related impacts.

Draft 1 was prepared by Rob Winthrop, Senior Social Scientist, BLM Washington Office[1], in response to the May 18, 2008 Mitigation Workshop sponsored by Sublette County. Subsequent revisions reflect input from Roy Allen, Regional Economist, BLM Wyoming State Office, and Jeffrey Jacquet, former Sublette County Socioeconomic Analyst. The current document contains additional development and research by ERG.

The items contained in Table 8-1 are presented to satisfy reporting requirements and facilitate discussion by citizens, local and state government officials, operators, BLM managers and staff, and other interested parties. It does not represent BLM policy, nor does it imply a commitment by the BLM to provide funds or staffing for a monitoring effort. The indicators are prioritized in three tiers. Priority 1 provides the most limited monitoring program, Priority 3 the most extensive and most costly. Priority 2 includes indicators listed under Priority 1 and Priority 3 includes indicators listed under Priorities 1 and 2.

The indicators were selected using several criteria:

- Balance. The indicators should reflect both the benefits and the challenges of oil and gas development, as well as other drivers of economic change.
- Consistency. The indicators selected should be broadly consistent with any existing monitoring objectives.
- Comparability. At least some of the indicators should be applicable to any area of the country in order to facilitate the implementation of a consistent social and economic monitoring strategy across the lands administered by the BLM. Economic and demographic indicators should use readily available Federal or State data, to the extent feasible. Federal data sources provided through the BLM-funded Headwaters Economics Economic Profile System are particularly useful.[2]

The following items should be taken into consideration when deciding what indicators to monitor:

[1] Division of Decision Support, Planning and NEPA (WO-210); 202-557-3587
[2] The Economic Profile System application and database as well as county-level reports can be downloaded free of charge at www.headwaterseconomics.org/eps.

- Cumulative effects. How should the monitoring effort consider (a) oil and gas development on non-BLM lands and (b) other industrial activities within the monitoring area?

- Sources of data. If timeliness of data is important, federal data and data provided by the Economic Profiling System may require supplementation with other data which may be more recent.[3]

- Use of projections. Most of the indicators listed below are retrospective in that they measure what has happened. To the extent that future oil and gas activity can be estimated, such data could be used to project many of these indicators forward, which would make the monitoring effort much more valuable as a basis for local planning for facilities and services.[4]

- Staffing and coordination. It may be appropriate to request that the county's Socioeconomic Analyst assume certain responsibilities for conducting monitoring activities under this plan. Depending on the specifics of the final monitoring plan, available skills, and level of funding for the position, this role could involve providing data, analyzing data, coordinating monitoring activities, or preparing the monitoring report.

- Benchmarking. Designated categories (●) could also be compared with data for a benchmark county selected for minimal oil and gas activity.

Section 8-2 provides an example of a current monitoring report based on the indicators outlined in Table 8-1.

[3] Jeffrey Jacquet, former sociologist for Sublette County, suggests that because most federal data will be two to three years old, the monitoring program may need to rely more on state data. "The Wyoming Department of Administration and Information, Economic Analysis Division and the Wyoming Department of Employment, Research, and Planning offer similar statistics that are typically only six months to one year old."

[4] Jeffrey Jacquet: "The BLM is 'supposed to be' providing yearly 10-year development projections for both the Anticline and the Jonah Field. Could the monitoring program take into account these development scenarios and then project the impacts to the selected indicators? As well as track the changes in field development and the changes in the development projections—such as when 'the bust' is scheduled to hit, etc…"

Table 8-1 Socioeconomic Monitoring Indicators

Priority	Indicator	Source(s)	Significance	Notes	Current Data
1	Oil and natural gas prices	Wyoming sweet gas prices available from the U.S. Energy Information Administration http://www.eia.doe.gov/ (U.S. Energy Information Administration 2009) and directly from Wyoming Economic Analysis Division http://eadiv.state.wy.us/ (Linn 2009).	Price trends may provide an early indicator of shifts in exploration activity. Higher prices could suggest increases in exploration and production activities, while flat or decreasing prices could indicate maintaining current/decreasing levels of activity.	Data are available on a monthly basis.	Wyoming 2008 average sweet first purchase price: $88.40 per barrel (U.S. Energy Information Administration 2009).
1	Rig months, oil and gas wells (1) in operation and (2) 10-year projected drilling activity	Operators, Wyoming Oil and Gas Conservation Commission at http://wogcc.state.wy.us/, BLM at http://www.blm.gov/	Projected drilling activities will be helpful in anticipating population impacts.	Request information from operators. Current data may be available from WOGGC. Data are updated on a weekly and monthly basis. Custom reports are available upon request.	The 2007 count for total oil and gas wells in production in Sublette County is 2,186 wells (Wyoming Oil and Gas Conservation Commission 2007). .

Priority	Indicator	Source(s)	Significance	Notes	Current Data
1	10-year projected oil and gas production	Operators	This information in conjunction with projected prices of oil and gas would provide the basis for estimating county mineral-related revenues.[5] Revenue estimates will help local governments plan to address anticipated infrastructure and personnel impacts.	To protect proprietary data, submissions could be aggregated by a third party. Data could be collected annually or more often if economic conditions warrant.	2009: 1,262,747,772 mcf 2010: 1,388,514,132 mcf 2011: 1,514,012,904 mcf 2012: 1,619,710,164 mcf 2013: 1,690,353,396 mcf 2014: 1,760,996,628 mcf
1	Population: county trend compared with benchmark county and state ●	Wyoming Department of Administration and Information at http://ai.state.wy.us/, Economic Analysis Division at http://eadiv.state.wy.us/	Shifts in population are important in anticipating adequate staffing levels for public services, including police, fire, education, medical, and government. In addition, housing needs are directly linked to population numbers.	Use Census estimates which are available annually at the end of March.	2007 Sublette County population: 7,925

[5] Roy Allen, BLM Economist: "By including [production projections] in the monitoring plan, the impacted counties and communities would be able to project earnings, employment and population by 10 year increments that would then be updated annually based on industry submissions. They would also be able to estimate taxes and royalties on the same 10 year basis as a fluctuation of industry provided by production estimates and these projections would also be kept current by sending out an annual request to industry for this information."

Priority	Indicator	Source(s)	Significance	Notes	Current Data
2	Oil and gas workers and dependents, by county	Operators; Wyoming Department of Employment, Research, and Planning at http://doe.state.wy.us/; Wyoming Department of Transportation at http://dot.state.wy.us/	Where industry-supplied housing is available, worker and family member counts will indicate whether adequate housing is present.	These numbers may be estimated using workforce requirements on a per-well or per-rig basis. Methodology would depend on field and project conditions.[6]	2007: 1,478 workers and family members 2008: 1,702 workers and family members 2009: 1,630 workers and family members
1	Estimated oil and gas industry employment including subcontractors	Operators[7]; BLS NAICS sectors 211, 212, 213 at http://www.bls.gov/; IMPLAN®	Collecting population data from multiple sources is helpful in determining how well differing sources agree and in assessing accuracy of data and/or estimates.	BLS State and County Employment and Wages Reports are released monthly, approximately one month after collected. BLS website has schedule (Bureau of Labor Statistics 2009). IMPLAN® datasets are released annually and must be purchased from the Minnesota IMPLAN® Group. IMPLAN® datasets are generally released in October for the preceding year.	2009: 2,012 workers 2010: 2,010 workers 2011: 1,940 workers 2012: 1,905 workers 2013: 1,946 workers 2014: 1,426 workers 2015: 1,403 workers 2016: 1,395 workers 2017: 1,387 workers 2018: 1,402 workers

[6] Comment by Jeffrey Jacquet re: estimating number of oil and gas workers and dependents by county: "The operators do not have this information. The gas field organization and employment residency is too complex and decentralized for the operators to provide this information. The only so-far proven way of obtaining these numbers is to estimate them using workforce requirements on a per-well or per-rig basis, et cetera. The operators do not have qualified staff to provide these numbers. The monitoring program will have to work with the operators and various subcontractors to put together a methodology to estimate the workers and dependents accurately."
For Sublette County analysis, ERG used workers per well as estimated by the operators and documented in BLM reports. The Wyoming DERP can provide estimates of inter- and intra-state commuting trends. The WYDOT can provide information on applications for and surrendered driver's licenses.

[7] Out-of-state subcontractors must be contacted directly for their employment counts as BLS statistics only include in-state counts.

Priority	Indicator	Source(s)	Significance	Notes	Current Data
1	Employment by sector ●	BEA REIS Table CA25N – NAICS at http://bea.gov/regional/reis/	Shifts in major employment sectors will in turn affect personal and household income values. Wide gaps in income between sectors can contribute to disparate financial opportunities for residents.	Local Area Personal Income 2007 Reports (including CA25N) will be available April 23, 2009. See BEA website for other release dates.	2007 Mining Sector employment: 1,570. For other sectors, see Section 8.2.3.2.
1	Personal income by sector; non-labor income ●	BEA REIS Table CS05N – NAICS and Table CA30 at http://bea.gov/regional/reis/ or EPS Sublette County Profile at http://www.headwaterseconomics.org/ (Headwaters Economics 2008)	Non-labor income is broadly classified into investment-related (interest, dividends, and rent) and transfer payments (retirement, disability, and government payments to individuals such as Medicare and unemployment). This information in conjunction with demographic data can help determine socioeconomic characteristics of the local population.	Local Area Personal Income 2007 Reports will be available April 23, 2009. See BEA website for other release dates (Bureau of Economic Analysis 2009).	In 2006, personal income was 70% labor income and 30% non-labor income (Headwaters Economics 2008). For personal income by sectors, see Section 8.2.3.3.
2	Income distribution ●	Headwaters Economics EPS datasets at http://www.headwaterseconomics.org/, U.S. Census at http://www.census.gov/	These data can be used to compare the number of high-earning households to those at a lower income level.[8]	Data are available every ten years from the Census.	"In 1999, for every household that made over $100,000, there were 5.1 households that made under $30,000." (Headwaters Economics 2009).

[8] For this study's purposes, ERG has followed the EPS format of comparing the number of households making over $100,000 to those making under $30,000.

Priority	Indicator	Source(s)	Significance	Notes	Current Data
1	Unemployment rate compared with benchmark county, state, and nation ●	BLS at http://www.bls.gov/	Low unemployment rates can indicate a lack of available workers in the area. At times, this can result in competition for available workers, often with an increase in local pay scales.	BLS statistics only include in-state counts. BLS State and County Employment and Wages Reports are released monthly, approximately one month after collection. Refer to BLS website for schedule (Bureau of Labor Statistics 2009).	Sublette County's 2007 unemployment rate was 1.5%.
2	Employment diversity/ specialization	Headwaters Economic EPS at http://www.headwaterseconomics.org/	These values measure the range of employment opportunities and can be used to compare regional patterns against state or national patterns. In addition, these data can indicate if employment is heavily weighted toward a particular industry, affording planners the opportunity to anticipate employment changes if that industry presence decreases.	Refer to index discussed in EPS which uses data from the U.S. Census Bureau[9] (available every 10 years). EPS annual reports are generally released in February (Headwaters Economics 2009).	Sublette County is specialized with a specialization score of 430 The nation as a whole has a specialization score of 0. (Headwaters Economics 2009).

[9] The specialization index used in the EPS is calculated as:

$$SPECIAL_{it} = \sum_{j=1}^{n} \left(\left(\frac{EMP_{ijt}}{EMP_{it}} \right) - \left(\frac{EMP_{usjt}}{EMP_{ust}} \right) \right)^2$$

Where, $SPECIAL_{it}$ = specialization of economy in county i in year t
EMP_{ijt} = employment in industry j in county i in year t
EMP_{it} = total employment in county i in year t
EMP_{usjt} = employment in industry j in US in year t
EMP_{ust} = total employment in US in year t
n = number of industries
A high specialization index indicates a lack of economic diversity.

Priority	Indicator	Source(s)	Significance	Notes	Current Data
2	Recreation use: Recreation days by category	BLM Recreation Management Information System http://www.blm.gov/	Trends in this area can measure changes in usage patterns.	Contact BLM directly	Available by area
3	Tourism: Visitor origin, recreation use, and spending	Intercept survey targeting visitors	Trends in this area can measure changes in usage patterns.	Contact landowner directly (i.e. Forest or Park Service)	Available by area
1	Wyoming share of FMR	Wyoming Treasurer's Office Annual Reports at http://treasurer.state.wy.us/ (Wyoming Treasurer's Office 2009), Federal Mineral Management Service at http://www.mms.gov/ (Federal Mineral Management Service 2009)	FMR distributions are not currently a significant source of revenue to Sublette County local government.	Treasurer's Office reports are generally released in January for the previous fiscal year. Federal Mineral Management Service custom reports are available upon request.	Total FMR distributed to Sublette County in 2008 was $324,594.
1	Wyoming severance tax	Wyoming Treasurer's Office Annual Reports at http://treasurer.state.wy.us/ (Wyoming Treasurer's Office 2009), Wyoming Legislative Handbook at http://legisweb.state.wy.us/ (Wyoming Legislative Service Office 2007, 2009)	Severance distributions are not currently a major source of revenue to Sublette County local government.	Treasurer's Office reports are generally released in January for the previous fiscal year. Legislative handbooks are available in odd-numbered years at the beginning of the legislative session.	Total severance distributed to Sublette County in 2008 was $185,008.

Priority	Indicator	Source(s)	Significance	Notes	Current Data
1	County property tax revenues by source including ad valorem oil and gas production tax	County Assessor, Wyoming Department of Revenue Annual Reports at http://revenue.state.wy.us/ (Wyoming Department of Revenue 2009)	This is a major revenue stream for county government and is useful in determining available funding for operating and capital expenditures.	Contact County Assessor directly, Department of Revenue reports are generally released in the third or fourth quarter for the previous fiscal year.	Total ad valorem received by Sublette County in 2008 was $40,892,723. Sales and use tax received by Sublette County in 2008 was $24,973,536.
1	Value of proposed and current growth-related capital improvements by jurisdiction (i.e. sewer, water, roads, public facilities)	Provided by counties and municipalities	Comparison of these values against all revenue streams will indicate whether current funding mechanisms are adequate to mitigate necessary capital improvements.	Contact County and Municipal government	Cost estimates: Big Piney $9,256,754 Marbleton $13,279,855 Pinedale $82,267,068 Sublette County $55,400,000 For details see Section 8.2.5.1.
2	Traffic accidents by county ●	The Crash at http://dot.state.wy.us/ (Wyoming Department of Transportation 2007; Wyoming Treasurer's Office 2009)	Changes in traffic accident counts can indicate the need for safety-related improvements to public transportation networks.	Annual reports released in June.	Sublette County had 357 traffic accidents in 2007.
1	Housing availability: rental occupancy rates by category of housing ●	Housing Database Partnership biannual reports at http://www.wyomingcda.com/ (Wyoming Community Development Authority 2009)	The availability of rental units in conjunction with estimates of population who need rental housing will indicate if supply is adequate.	Generally released in August and February of each year.	Sublette County rental vacancy rate was 3.44% in the second quarter of 2008.

Priority	Indicator	Source(s)	Significance	Notes	Current Data
1	Housing availability: existing stock and new construction of housing units by category ●	County Assessor, Housing Database Partnership biannual reports at http://www.wyomingcda.com/, U.S. Census Bureau at http://www.census.gov/	The availability of housing units in conjunction with estimates of population interested in purchases will indicate if supply is adequate.	The most timely online data source is the Housing Database Partnership.	Sublette County released 100 building permits in 2008, decreasing 61% since 2007.
1	Housing affordability ●	County Assessor, Headwaters Economics EPS Housing Affordability Index at http://www.headwaterseconomics.org/	This value in conjunction with personal, household, or family income averages indicates how affordable regional housing is. When the minimum qualifying income is greater than the typical family can afford, purchased housing is essentially out of reach for a segment of the population.	County Assessor can provide annual sales information. EPS provides Housing Affordability Index using data from U.S. Census Bureau (available every 10 years). EPS annual reports are generally released in February (Headwaters Economics 2009).	In 2007, the minimum qualifying income to purchase an average home in Sublette County exceeded the median family income by $17,796.
2	Temporary (operator provided) housing: worker-months occupied	Operators; Area hotels, motels, RV parks, and campgrounds	Occupancy rates can be used by operators to adjust available housing.		Summer transient workers estimated at 856 in 2008. Winter transient workers estimated at 762 in 2008.
1	Crimes charged, adult and juvenile ●	U.S. Dept. of Justice, Uniform Crime Report at http://www.usdoj.gov/ Wyoming Attorney General's Office, DCI at http://attorneygeneral.state.wy.us/	Trends can indicate the need for changes in law enforcement and court-related personnel and infrastructure, as well as detention facility capacities.	DCI is available quarterly for the current year and annually for historical data.	Sublette County had 517 adult arrests and 25 juvenile arrests.

Priority	Indicator	Source(s)	Significance	Notes	Current Data
2	Circuit Court cases	Wyoming Attorney General's Office, DCI at http://attorneygeneral.state.wy.us/	Trends can indicate the need for changes in law enforcement and court-related personnel and infrastructure, as well as detention facility capacities.	Analysis should highlight categories of particular interest, which could include drug offenses, domestic violence, etc. These reports could provide more detail than federal Uniform Crime Reports.	Sublette County documented 4,230 citations and 397 non-citations in 2006.
3	Quality of life survey	Question template in Michael S. Coburn's *Community Satisfaction and Quality of Life Survey for Long-Term Residents of Sublette County* (Coburn 2008)[10] at http://www.sublette-se.org/	Survey responses will indicate resident satisfaction in the area. Trends can be used to monitor cause-and-effect, especially when administered regularly.		See Section 8.2.7.3

[10] A quality of life survey would be most useful if administered on a regular basis (i.e. annually or semi-annually) based on a random sample of residents. The questions should be closed-ended and limited in number. Attitudinal questions should be scaled (typically on a 5 point scale, "strongly agree" to "strongly disagree."). An example: "Overall, energy development has benefited county residents." These should be accompanied by demographic questions which include income, education, sector of employment, and years of county residence.

Priority	Indicator	Source(s)	Significance	Notes	Current Data
3	Focus groups to address particular issues related to energy development	Local and/or affected residents and workers.	A focus group is valuable for interpreting existing information (e.g., explaining changes in patterns of tourism and recreation) or eliciting suggestions for solving problems (e.g., how to accommodate growing housing demand by oil and gas workers). For issues related to energy development, focus groups should include both long-term residents and shorter-term oil and gas workers		One example of a focus group is the Sublette County Childcare Coalition which formed as a result of population growth and an overcrowding of daycares (Sublette County Childcare Coalition 2009)

8.2 MONITORING PLAN

8.2.1 Oil and Gas Activity

8.2.1.1 *Oil and Natural Gas Prices*

Wyoming sweet first purchase price has been decreasing since June 2008. Table 8-2 and Figure 8-1 illustrate this trend.

Table 8-2 Wyoming sweet first purchase prices, 2008 (Energy Information Administration 2009)

Time	Dollars per Barrel
Jan-2008	$82.87
Feb-2008	$84.59
Mar-2008	$94.62
Apr-2008	$103.25
May-2008	$115.99
Jun-2008	$123.81
Jul-2008	$122.59
Aug-2008	$106.34
Sep-2008	$90.07
Oct-2008	$61.68
Nov-2008	$44.94
Dec-2008	$30.06

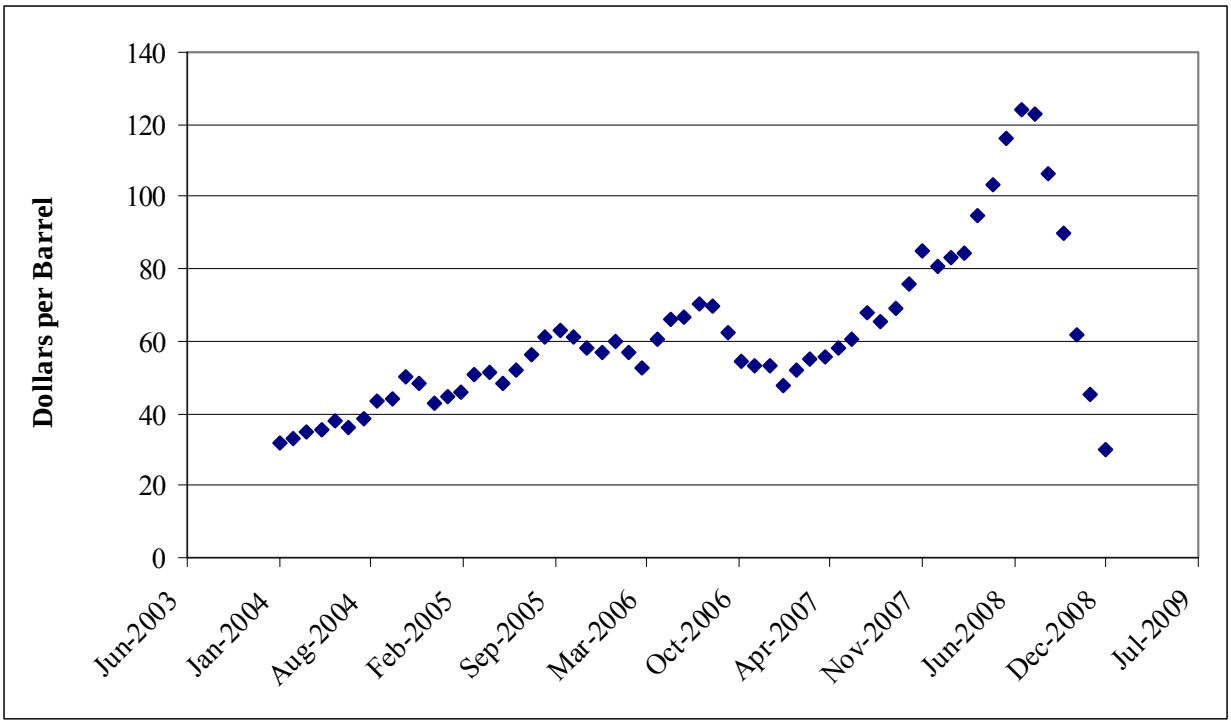

Figure 8-1 Wyoming sweet first purchase prices, January 2004–December 2008 (Energy Information Administration 2009)

8.2.1.2 *Rig months, oil and gas wells (1) in operation and (2) 10-year projected drilling activity*

Table 8-3 reports recent rig counts in Sublette County and Table 8-4 shows the total oil and gas wells in operation from 2009 to 2020.

Table 8-3 Rigs working per month in Sublette County (Baker Hughes 2009)

Month, Year	Rigs per Month
October 2008	47.00
November 2008	44.25
December 2008	44.50
January 2009	39.80
February 2009	37.00
March 2009	30.75
April 2009	26.00
May 2009	24.25
June 2009	21.00

Table 8-4 Oil and gas wells in operation, 2000–2008 (Wyoming Oil and Gas Commission 2007)

Year	Wells in Production
2000	1,733
2001	1,930
2002	2,114
2003	2,306
2004	2,339
2005	2,625
2006	3,035
2007	3,436
2008	4,274

Table 8-5 Expected increase in wells from the PAPA and Jonah fields and in Sublette County as a whole (USDI 2006; Wyoming Oil and Gas Conservation Commission 2009)

Fiscal Year	Expected Wells Drilled	Total Wells in Sublette County
2009	445	4,719
2010	470	5,189
2011	469	5,658
2012	395	6,053
2013	264	6,317
2014	264	6,581
2015	269	6,850
2016	288	7,138
2017	347	7,485
2018	315	7,800
2019	430	8,230
2020	345	8,575

Sublette County's production is estimated at 2008's average production per well of 267,588 mcf/well times the estimated number of wells (Wyoming Oil and Gas Conservation Commission 2009). The state production estimates by CREG do not include the increases in wells estimated from the PAPA and Jonah fields in Sublette County.

Table 8-6 Natural gas production projections as of May 2009 (mcf) (CREG 2009)

Fiscal Year	State Production	Sublette County Production
2009	2,540,300,000	1,262,747,772
2010	2,616,500,000	1,388,514,132
2011	2,695,000,000	1,514,012,904
2012	2,775,900,000	1,619,710,164
2013	2,859,200,000	1,690,353,396
2014	2,945,200,000	1,760,996,628

8.2.2 Demographics

8.2.2.1 *Population*

Census population counts are made every ten years; population counts in intermediate years are estimates (2001-2010 below).

Table 8-7 Population estimates for Sublette County and Municipalities 2000-2010 (Wyoming Department of Administration and Information 2008)

Year	Big Piney	Marbleton	Pinedale	Sublette County
2000	408	720	1,402	5,920
2001	404	712	1,383	5,897
2002	421	742	1,433	6,145
2003	431	762	1,479	6,317
2004	438	780	1,545	6,575
2005	451	806	1,647	6,880
2006	453	848	1,818	7,241
2007	476	919	2,043	7,925
2008	501	967	2,150	8,340
2009	526	1,015	2,256	8,750
2010	551	1,063	2,364	9,170
Percentage Growth	35.0%	47.6%	68.6%	54.9%

8.2.2.2 *Oil and Gas Workers and Dependents*

Table 8-8 Number of personnel and family members living in Sublette County (Ecosystem Research Group 2008a)

Year	Workers and Family Members
2007	1,478
2008	1,702
2009	1,630

Table 8-9 shows the intercensal and industry population estimates for 2009 to 2018. For 2010 to 2018, ERG estimated the industry workforce from industry's estimates for 2007–2009. Recognizing that these values are only approximations, ERG treated the sum as a midpoint with a deviation of plus or minus 15%. Thus the total population projection value of 10,380 residents in 2009 could range from a low of 8,823 to a high of 11,937.

Table 8-9 Sublette County total population estimates (Ecosystem Research Group 2008a; Wyoming Department of Administration and Information 2008)

Year	Census Estimate	Industry Estimate	Total Population Estimate	Low Population Projection	High Population Projection
2009	8,750	1,630	10,380	8,823	11,937
2010	9,170	1,638	10,808	9,187	12,429
2011	9,600	1,552	11,152	9,479	12,825
2012	10,050	1,524	11,574	9,838	13,310
2013	10,420	1,557	11,977	10,180	13,774
2014	10,800	1,141	11,941	10,150	13,732
2015	11,200	1,122	12,322	10,474	14,170
2016	11,600	1,116	12,716	10,809	14,623
2017	12,020	1,109	13,129	11,160	15,098
2018	12,460	1,122	13,582	11,545	15,619

8.2.3 Economic Activity (by county unless otherwise noted)

8.2.3.1 *Estimated Oil and Gas Industry Employment Including Subcontractors*

Oil and gas industry employment projections are from industry responses to ERG's survey (see Appendix A). Survey responses were received from eight of the 23 companies surveyed. Results indicate that employment is expected to remain relatively stable until 2013. At that time employment will decrease by approximately 500 employees and remain at that level until 2018. Table 8-10 and Figure 8-2 present this information, separated into development phases or work tasks. Note that these estimates are subject to change due to economic conditions and/or changes in gas or oil prices.

Table 8-10 Total FTE projections by phase, 2009-2018 (Ecosystem Research Group 2008a)

Phase	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Development Phase										
Drilling	1,137	1,176	1,199	1,217	1,238	713	689	666	642	642
Completion	151	151	151	108	108	108	108	108	108	108
Production	377	390	404	420	437	454	470	486	501	515
Reclamation and Pad Construction	210	194	127	94	90	78	61	61	61	61
Other										
Workover	53	53	59	66	73	74	74	75	75	76
Miscellaneous Employment	85	85	0	0	0	0	0	0	0	0
Total Employment	**2,012**	**2,047**	**1,940**	**1,905**	**1,946**	**1,426**	**1,403**	**1,395**	**1,387**	**1,402**

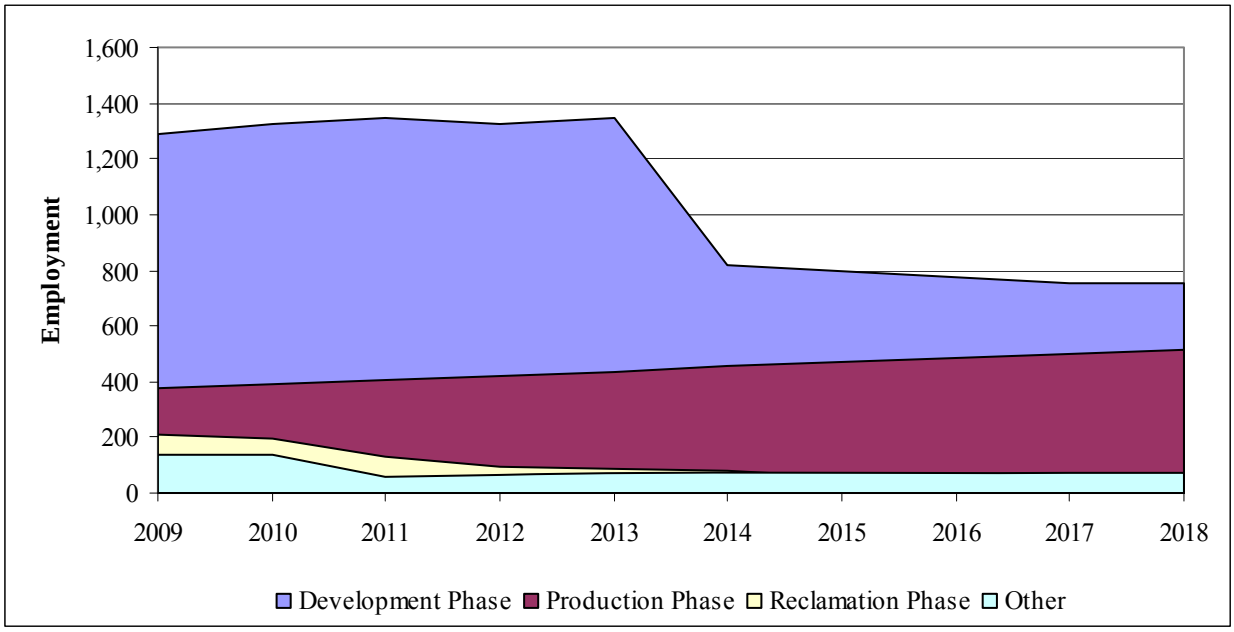

Figure 8-2 Total FTE projections by phase, 2009-2018 (Ecosystem Research Group 2008a)

8.2.3.2 *Employment by Sector*

The top four employment sectors in Sublette County are Mining; Retail Trade; Arts, Food and Accommodation; and Construction and Manufacturing. Other sectors, such as Transportation; Utilities; Finance; Professional Services; and Agriculture employ a smaller segment of the working population. Table 8-11 shows historical employment levels for various sectors between 2001 and 2007.

Table 8-11 Total employees per sector (United States Department of Labor 2008b)

Sector	2001	2002	2003	2004	2005	2006	2007	% Change 2001 to 2007
Agriculture, Forestry, Fishing and Hunting	88	91	94	92	93	79	85	-3.4%
Finance and Insurance	42	61	61	63	71	86	90	114.3%
Information	33	35	32	37	57	51	37	12.1%
Other Services such as Public Administration	68	71	74	92	94	99	105	54.4%
Professional and Technical Services	100	86	87	83	112	131	139	39.0%
Real estate, Rental and Leasing	27	29	27	25	29	44	46	70.4%
Transportation and Warehousing	51	54	60	64	88	127	206	303.9%

Sector	2001	2002	2003	2004	2005	2006	2007	% Change 2001 to 2007
Utilities	0	0	23	24	30	41	56	N/A
Wholesale and Retail Trades	275	301	301	314	347	408	477	73.5%
Mining	279	329	478	583	680	946	1,570	462.7%
Construction and Manufacturing	297	316	321	433	613	701	752	153.2%
Arts, Food and Accommodation	328	354	361	398	441	518	514	56.7%

The Mining Sector shows an employment increase of 462.7% from 2001 to 2007. As people working in the Mining Sector report large annual incomes, increases in employment in this sector change the dynamics in Sublette County; people commute and move into the area for work and those working in the Mining Sector earn more than those in other sectors (see Table 8-12).

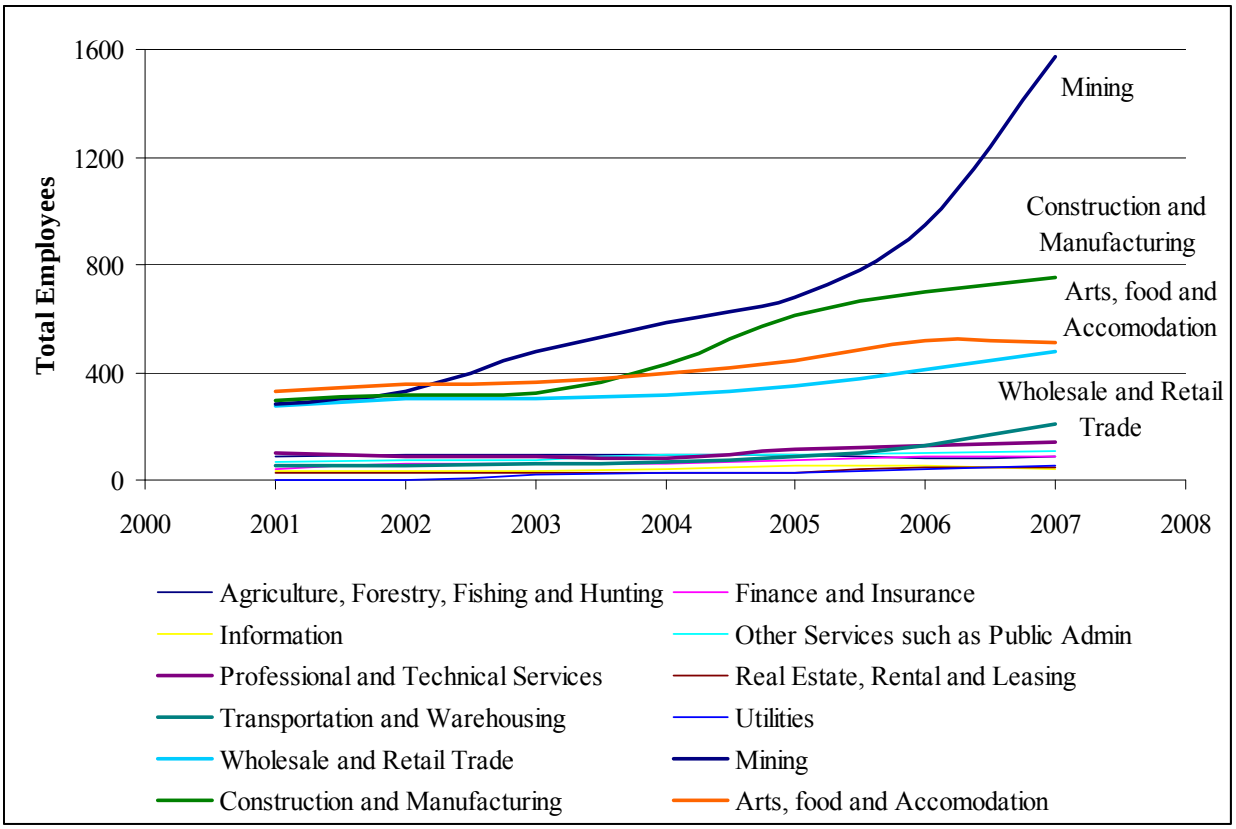

Figure 8-3 Total employees per sector (United States Department of Labor 2008b)

8.2.3.3 *Personal Income by Sector and Non-Labor Income*

Wages in the Mining Sector are much higher than other sectors in Sublette County and have steadily increased over time. Table 8-12 and Figure 8-4 depict average annual wages by sector in Sublette County between 2001 and 2007. Although lower in comparison with the Mining Sector, wages in the Arts, Construction, and Retail Sectors have consistently increased over the last few years.

Table 8-12 Average annual wages by sector for Sublette County (United States Department of Labor 2008b)

Sector	2001	2002	2003	2004	2005	2006	2007
Arts, Food and Accommodation	$16,492	$14,309	$14,848	$14,889	$22,157	$24,616	$31,147
Construction and Manufacturing	$22,798	$22,493	$25,097	$27,397	$34,101	$36,711	$42,294
Mining	$45,668	$51,845	$49,636	$53,501	$61,196	$67,205	$76,495
Retail Trade	$17,443	$17,668	$19,362	$20,353	$21,727	$24,384	$27,357

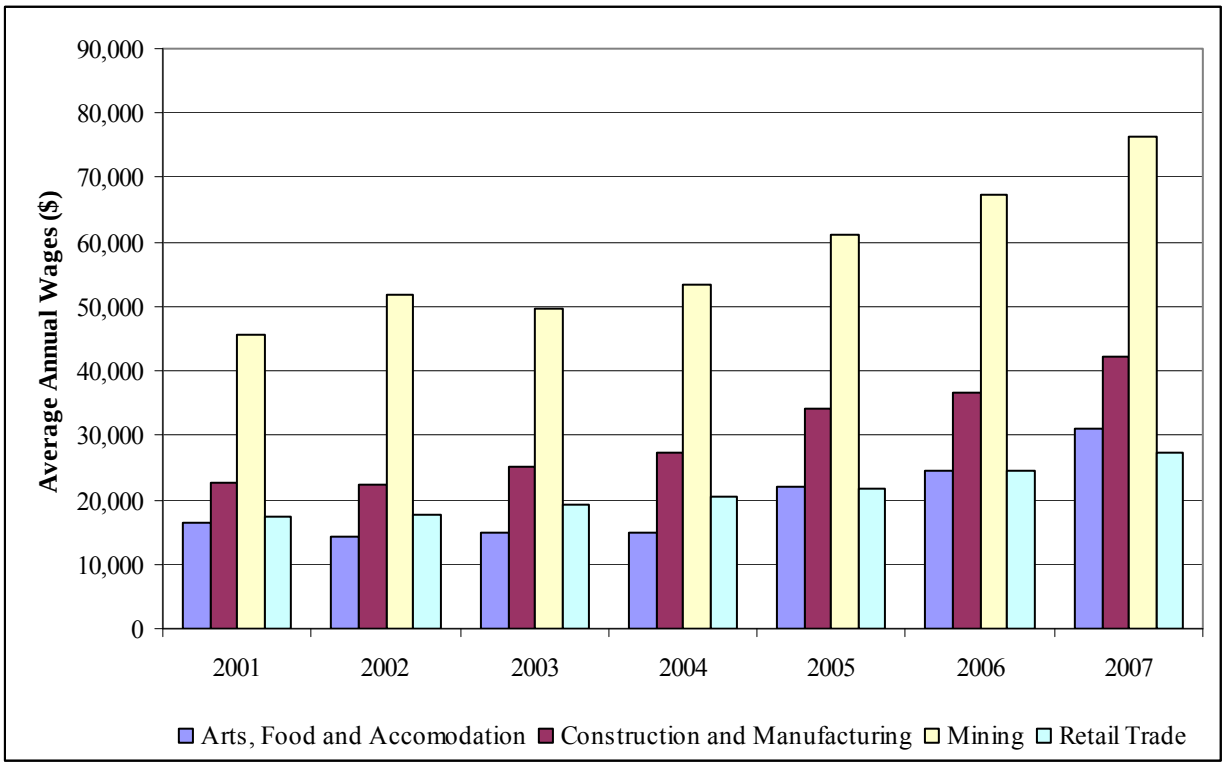

Figure 8-4 Average annual wages by sector for Sublette County (United States Department of Labor 2008b)

Non-labor income consists of money earned from investments and payments from governments to individuals such as Medicare, Social Security, unemployment compensation, disability insurance payments, and welfare (Headwaters Economics 2008). The proportion of non-labor income earned in Sublette County has fallen since 1995, indicating higher labor-earned income; this proportion peaked in the late 1990s and early 2000s, right before the Mining Sector emerged in Sublette County with high income and employment.

Table 8-13 Labor and Non-Labor Income (Headwaters Economics 2008)

Income in Millions of 2006$[11]	1995	1995 % of Total	2006	2006 % of Total
Total Personal Income	149	100%	355	100%
Labor Sources	87	58%	250	70%
Non-Labor Sources	62	42%	105	30%

[11] Percentages do not add to 100 because of adjustments made by BEA, such as residence, social security, and others.

8.2.3.4 *Income Distribution*

Income in Sublette County is becoming more evenly distributed, as indicated by Sublette County's EPS Profile (Headwaters Economics 2009). Sublette County's changes in income distribution correlate with rises in income and a reduction in the unemployment rate, as more Sublette County residents are able to find employment.

> In 1999, for every household that made over $100,000, there were 5.1 households that made under $30,000. Ten years earlier [in 1999], for every household that made over $100,000, there were 17.2 households that made under $30,000.

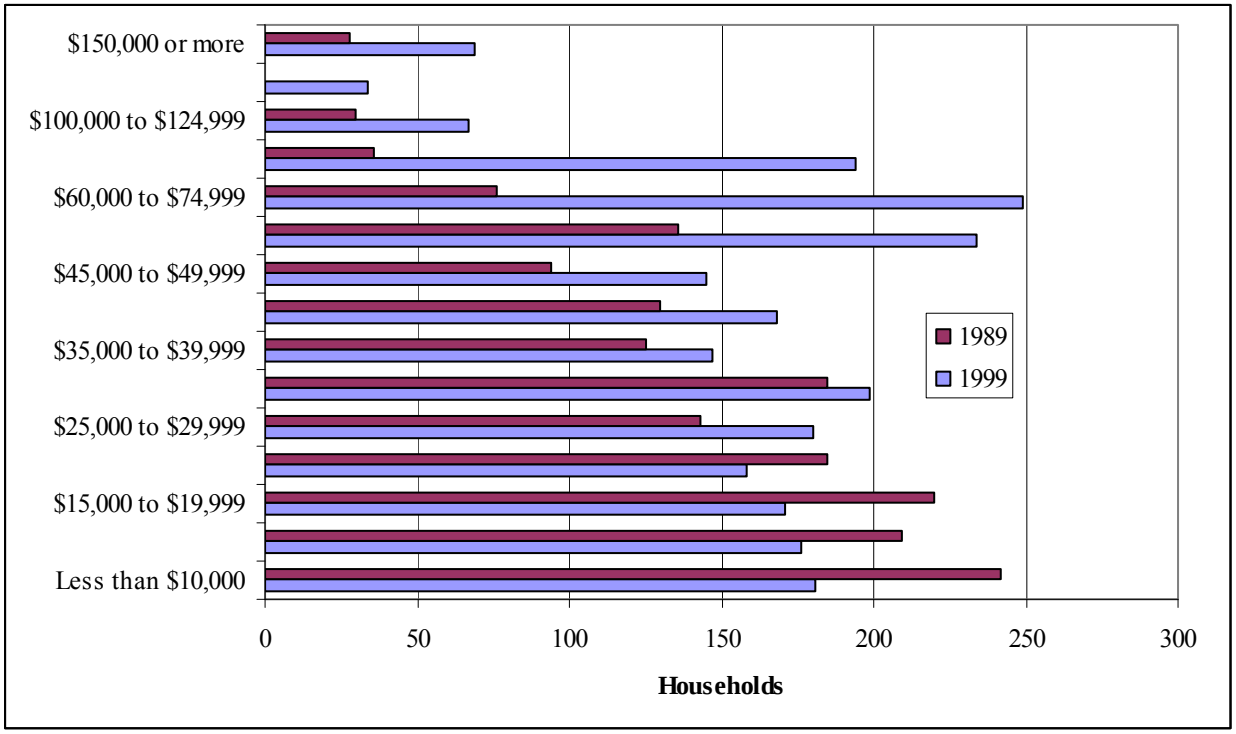

Figure 8-5 Housing income distribution not adjusted for inflation (Headwaters Economics 2008)

8.2.3.5 *Unemployment Rate*

Unemployment in Sublette County has declined since 2003. Although this trend parallels the state and nation, the county's 1.5% unemployment rate is lower than Wyoming's 3% rate and much lower than that of the nation's 4.6% rate. According to letters from the towns of Marbleton and Big Piney, employers in Sublette county often struggle to find employees to fill vacancies because unemployment levels are so low (Town of Big Piney 2007a; Town of Marbleton 2007a).

Table 8-14 Unemployment rates for the United States, Wyoming, and Sublette County, 2000–2007 (United States Department of Labor 2008b)

Fiscal Year	Sublette County	Wyoming	United States
2000	2.9%	3.8%	4.0%
2001	2.7%	3.9%	4.7%
2002	2.9%	4.2%	5.8%
2003	3.1%	4.5%	6.0%
2004	2.4%	3.9%	5.5%
2005	2.1%	3.7%	5.1%
2006	1.8%	3.2%	4.6%
2007	1.5%	3.0%	4.6%

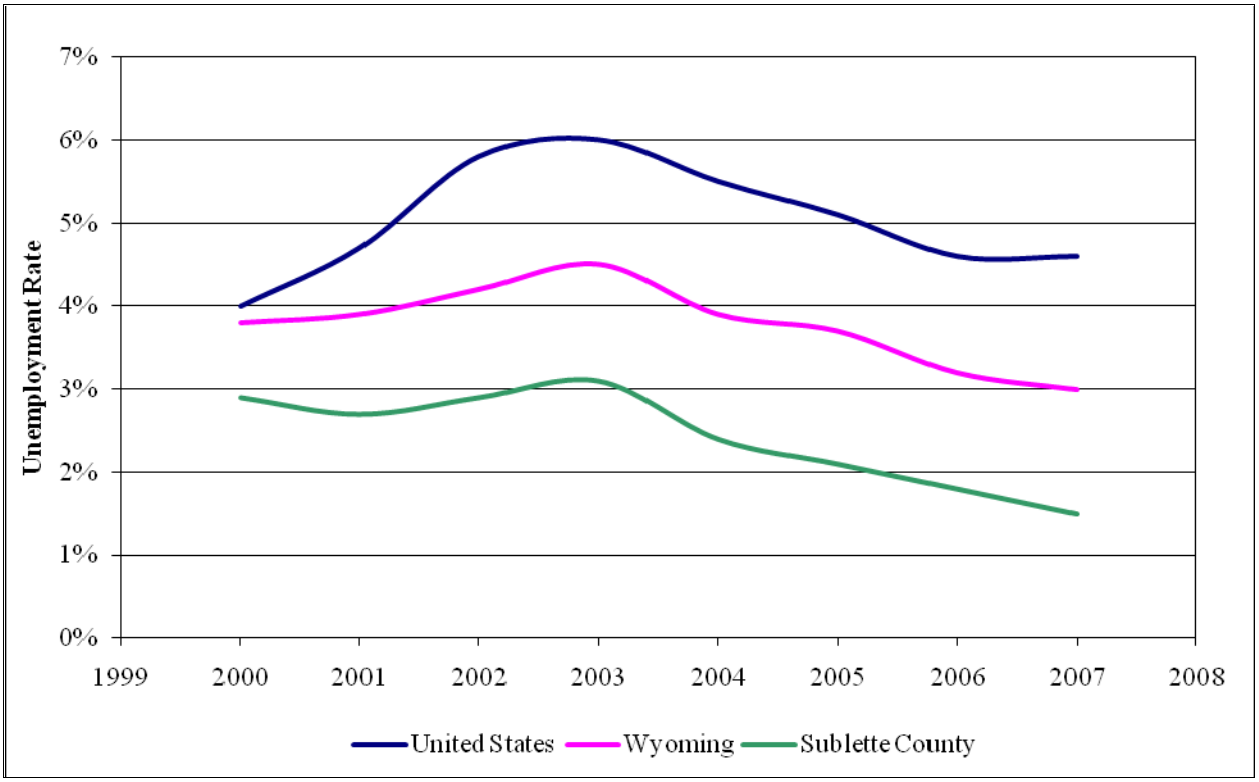

Figure 8-6 Unemployment rates for the United States, Wyoming, and Sublette County, 2000–2007

8.2.3.6 *Employment Diversity/ Specialization*

Sublette County is specialized with a specialization score of 430. A diverse county (structurally identical to the U.S. as a whole) would have a score of 0. Employment diversity indicates that a county is more able to adapt to changing economic conditions. However, Sublette County is by no means the most specialized county in the United States, as the largest score is 3,441 (Headwaters Economics 2009).

8.2.4 Revenues

8.2.4.1 *Wyoming Share of FMR*

The Federal Minerals Management Service is responsible for managing receipt and disbursement of FMR dollars. Funds are tracked several ways, including by county of origin. Table 8-15 shows the historical return of FMR taxes to Wyoming, identifying those funds attributed to production in Sublette County. As the data indicate, the percentage of total Wyoming FMR attributed to Sublette County energy extraction increased between 1996 and 2008.

Table 8-15 FMR funds returned to Wyoming (Federal Mineral Management Service 2009)

Fiscal Year	Total FMR Returned to Wyoming	FMR Returned to Wyoming Attributed to Production in Sublette County	Percentage of Returned FMR Attributed to Production in Sublette County
1996	$199,332,807	$8,778,314	4.40%
1997	$239,027,489	$16,897,025	7.07%
1998	$237,179,528	$23,811,308	10.04%
1999	$231,453,518	$21,659,476	9.36%
2000	$319,648,502	$40,423,327	12.65%
2001	$448,774,537	$80,604,143	17.96%
2002	$359,386,326	$43,746,086*	12.17%
2003	$467,266,554	$97,480,988	20.86%
2004	$564,332,554	$146,988,469	26.05%
2005	$878,524,871	$201,760,098	22.97%
2006	$1,072,479,293	$299,507,988	27.93%
2007	$925,261,906	$237,362,628	25.65%
2008	$1,270,987,013	$390,813,908	30.83%

* January to May 2002 data not available due to federal litigation issues.

Table 8-16 FMR taxes paid on production in Sublette County (Federal Mineral Management Service 2009)

Fiscal Year	FMR Taxes Paid on Production in Sublette County
1996	$17,556,329
1997	$33,794,063
1998	$47,622,547
1999	$43,318,953
2000	$80,846,655
2001	$161,208,285
2002	$87,492,172*
2003	$194,961,976

Fiscal Year	FMR Taxes Paid on Production in Sublette County
2004	$293,976,937
2005	$403,520,197
2006	$599,015,975
2007	$474,725,255
2008	$781,627,816

* January to May 2002 data not available due to federal litigation issues.

Final distribution of FMR funds to Sublette County municipalities is summarized in Table 8-17. Note that FMR funds are distributed only to municipalities and not to counties. It is interesting to see that while Sublette County operators paid over $781.6 million in FMR taxes during 2008, only $324,594, or 0.04%, was directly returned to the area. Furthermore, even though the total amount of FMR funds returned to Wyoming in 2008 was $1,270,987,013, the percentage distributed to Big Piney, Pinedale, and Marbleton was 0.03%.

Table 8-17 Historical State FMR distributions to Big Piney, Marbleton, and Pinedale (Wyoming State Treasurer's Office 2009)

Fiscal Year	Total FMR Distributed to Wyoming	FMR Distributed to Big Piney	FMR Distributed to Marbleton	FMR Distributed to Pinedale	Total County-wide FMR Distribution	Percentage of Total FMR Received
2000	$319,648,502	$65,833	$85,987	$147,232	$299,052	0.09%
2001	$448,774,537	$62,245	$85,014	$147,324	$294,583	0.07%
2002	$359,386,326	$57,118	$89,326	$160,761	$307,205	0.09%
2003	$467,266,554	$53,180	$82,376	$147,132	$282,688	0.06%
2004	$564,332,554	$53,257	$82,512	$147,399	$283,168	0.05%
2005	$878,524,871	$54,101	$84,001	$150,319	$288,421	0.03%
2006	$1,072,479,293	$55,198	$85,938	$154,118	$295,254	0.03%
2007	$925,261,906	$57,876	$90,664	$163,385	$311,926	0.03%
2008	$1,270,987,013	$59,911	$94,255	$170,428	$324,594	0.03%

8.2.4.2 *Wyoming Severance Tax*

Table 8-18 describes severance tax information for 2000 through 2008, which bears a strong similarity to trends seen with FMR payments. Mineral extraction in Sublette County has risen from just over 9% in 2000 to approximately 25% of 2008's statewide mineral taxable valuation. Accordingly, energy operators paid just over $250 million to the state of Wyoming in severance tax receipts.

Table 8-18 Historical Wyoming severance tax collections (Wyoming Legislative Handbooks 2007, 2009)

Fiscal Year	Statewide Severance Tax Revenues	Severance Taxes Paid on Production in Sublette County	Sublette County Percentage of Mineral Taxable Valuation
2000	$275,122,976	$25,173,752	9.15%
2001	$447,973,278	$51,516,927	11.50%
2002	$299,433,961	$43,178,377	14.42%
2003	$429,126,222	$60,764,273	14.16%
2004	$563,566,928	$122,970,304	21.82%
2005	$726,656,854	$180,937,557	24.90%
2006	$1,001,076,918	$279,800,999	27.95%
2007	$863,798,920	$224,587,719	26.00%
2008	$1,093,952,011	$269,440,380	24.63%

As seen with FMR funds, severance distributions to Sublette County and its municipalities ranged from 0.02% to 0.09% over the past seven years. Table 8-19 depicts state severance tax revenues and Sublette County/municipality distributions from 2000 through 2008.

Table 8-19 Severance tax distributions to Sublette County and municipalities (Wyoming Department of Revenue 2009; Legislative Handbooks 2007, 2009)

Fiscal Year	Statewide Severance Tax Revenues	Big Piney Distribution	Marbleton Distribution	Pinedale Distribution	Sublette County Distribution	Total Distribution	Percent of Total Revenue
2000	$275,122,976	$25,161	$35,136	$65,451	$60,952	$186,700	0.06%
2001	$447,973,278	$47,812	$71,604	$135,662	$154,042	$409,120	0.09%
2002	$299,433,961	$21,790	$38,453	$75,412	$97,554	$233,209	0.08%
2003	$429,126,222	$18,377	$32,430	$63,599	$67,414	$181,820	0.04%
2004	$563,566,928	$17,788	$31,390	$61,559	$74,857	$185,594	0.03%
2005	$726,656,854	$18,227	$32,165	$63,079	$71,902	$185,373	0.02%
2006	$1,001,076,918	$19,040	$33,599	$65,892	$72,776	$191,305	0.02%
2007	$863,798,920	$19,492	$34,398	$67,459	$73,055	$194,402	0.02%
2008	$1,093,952,011	$18,584	$32,796	$64,316	$69,314	$185,008	0.02%

8.2.4.3 *County Property Tax Revenues by Source Including Ad Valorem Oil and Gas Production Tax*

The Wyoming Department of Revenue administers the county ad valorem tax. For county residents, this is generally known as property taxes levied on homes and personal property. For the energy industry, this revenue stream is based on the taxable value of minerals (as determined by the Department of Revenue) produced during the previous calendar year and the applicable tax district mill levy (as set by the county and each tax district). The ad valorem tax is billed and collected annually by each county and is often reported as a component of property tax. In Sublette County, the ad valorem revenue from oil and gas

entities is the most financially significant component assessed for taxation. Table 8-20 displays recent ad valorem revenues for Sublette County, delineating the contribution from the energy industry.

Table 8-20 Sublette County ad valorem taxes assessed, 2000–2008 (Wyoming Department of Revenue 2009)

Fiscal Year	Total Ad Valorem Taxes Assessed	Ad Valorem Taxes Paid by Energy Operators	Industrial and Personal Property Taxes	Percentage of Ad Valorem Taxes Paid by Energy Operators
2000	$5,702,263	$4,466,583	$1,235,680	78.33%
2001	$10,207,862	$8,840,008	$1,367,854	86.60%
2002	$13,150,261	$11,649,816	$1,500,445	88.59%
2003	$11,206,742	$9,544,782	$1,661,960	85.17%
2004	$24,463,210	$22,559,972	$1,903,238	92.22%
2005	$35,078,515	$32,812,443	$2,266,072	93.54%
2006	$52,812,941	$49,992,730	$2,820,211	94.66%
2007	$48,999,127	$45,485,890	$3,513,237	92.83%
2008	$45,260,346	$40,892,723	$4,367,623	90.35%

Table 8-21 provides historical data on sales and use tax distributions between 1989 and 2008. Detailed distribution data are not available from the Wyoming Department of Revenue for 1996. In all cases this revenue stream increased noticeably in 1998 and 2001 and maintained double-digit growth between 2003 and 2007. Overall, receipts grew exponentially during this twenty year period, ranging from a low of 3,182% for Big Piney to 5,600%-5,900% for Marbleton, Pinedale, and Sublette County. It should be noted that the revenue generated through sales and use tax is the major stream of income for the towns in Sublette County.

Table 8-21 Sales and use tax annual distribution and change (Wyoming Department of Revenue 2009)

Fiscal Year	Big Piney	Marbleton	Pinedale	Sublette County	County-wide Sales and Use Distributions
1989	$51,880	$52,593	$104,384	$236,467	$445,324
1990	$71,579	$72,563	$144,019	$326,255	$614,416
1991	$71,287	$73,587	$145,467	$328,761	$619,102
1992	$60,194	$84,092	$156,685	$341,443	$642,414
1993	$57,918	$80,913	$150,761	$328,534	$618,126
1994	$63,285	$88,410	$164,730	$358,975	$675,400
1995	$73,719	$102,986	$191,889	$418,160	$786,754
1996	$70,914	$99,068	$184,590	$402,253	$756,825
1997	$96,901	$135,351	$252,168	$549,552	$1,033,972
1998	$200,973	$289,555	$513,892	$1,139,434	$2,143,854
1999	$216,458	$302,278	$563,076	$1,227,229	$2,309,041
2000	$231,331	$323,049	$601,767	$1,311,557	$2,467,704
2001	$402,442	$562,000	$1,046,881	$2,281,686	$4,293,009

Fiscal Year	Big Piney	Marbleton	Pinedale	Sublette County	County-wide Sales and Use Distributions
2002	$399,802	$705,533	$1,383,628	$3,312,084	$5,801,047
2003	$418,178	$737,961	$1,447,224	$3,507,905	$6,111,268
2004	$567,647	$1,010,272	$2,044,204	$4,729,477	$8,351,600
2005	$789,003	$1,401,281	$2,831,643	$6,614,682	$11,636,609
2006	$1,105,566	$1,958,458	$3,980,769	$9,233,764	$16,278,557
2007	$1,620,713	$2,862,616	$5,771,071	$13,499,463	$23,753,863
2008	$1,702,453	$3,008,499	$6,074,692	$14,187,892	$24,973,536

In 2002 the Wyoming Department of Revenue began to provide detailed information on sales and use tax receipts by business class. Table 8-22 illustrates that the Mining Sector is responsible for approximately half of the sales and use taxes generated within Sublette County. Thus, as sales and use tax receipts are the primary source of revenue for the towns, it follows that the Mining Sector is a major contributor of this revenue stream.

Table 8-22 Sublette County sales and use tax gross receipts by business class (Wyoming Department of Revenue 2009)

Fiscal Year	County-wide Sales and Use Taxes	County-wide Sales and Use Taxes Generated by Mining Sector	Percentage of Sales and Use Taxes Generated by Mining Sector
2002	$21,059,373	$9,877,876	47%
2003	$21,082,472	$9,324,467	44%
2004	$28,291,190	$14,158,341	50%
2005	$37,580,227	$18,615,522	50%
2006	$52,568,766	$26,543,808	50%
2007	$76,905,734	$39,215,156	51%
2008	$80,826,078	$41,612,387	51%

In 1976, congress authorized federal land management agencies to share income with states and counties with the payment in lieu of taxes (PILT) program. Forty-nine percent of Wyoming is owned and managed by the Federal government and this payment helps to offset lost revenue that states and counties would otherwise receive from private land (University of Wyoming 2009). Sublette County's PILT distributions from 2000 to 2008 are provided in Table 8-23. PILT is distributed according to the number of entitlement acres; Sublette County has 2,431,285 entitlement acres (University of Wyoming 2009).

Table 8-23 Sublette County PILT revenue, 2000–2008 (University of Wyoming 2009)

Fiscal Year	Payment per Entitlement Acre	PILT Revenue
2000	$0.11	$256,483
2001	$0.15	$371,922

Fiscal Year	Payment per Entitlement Acre	PILT Revenue
2002	$0.16	$391,914
2003	$0.18	$442,097
2004	$0.19	$461,105
2005	$0.20	$481,089
2006	$0.20	$491,999
2007	$0.20	$487,682
2008	$0.20	$484,197

Table 8-24 displays income received by Sublette County and the towns of Big Piney, Marbleton, and Pinedale from the same four revenue streams. In direct contrast to taxes paid by energy companies, ad valorem and sales and use taxes comprise over 90% of monies received by local governments in the county.

Table 8-24 Summary of county-wide operator-paid taxes received in Sublette County (Wyoming Department of Revenue 2009; Wyoming State Treasurer's Office 2009)

Fiscal Year	FMR Taxes Received County-wide	Severance Taxes Received County-wide	Ad Valorem Taxes Received County-wide	Sales and Use Taxes Received County-wide	Total Taxes Received County-wide
2000	$299,052	$186,700	$4,466,583	$2,467,703	$7,420,038
2001	$294,583	$409,120	$8,840,008	$4,293,007	$13,836,718
2002	$307,205	$233,209	$11,649,816	$5,801,045	$17,991,275
2003	$282,688	$181,820	$9,544,782	$6,111,266	$16,120,556
2004	$283,168	$185,594	$22,559,972	$8,351,600	$31,380,334
2005	$288,421	$185,373	$32,812,443	$11,636,591	$44,922,828
2006	$295,254	$191,305	$49,992,730	$16,278,557	$66,757,846
2007	$311,926	$194,402	$45,485,890	$23,753,863	$69,746,081
2008	$324,594	$185,008	$40,892,723	$24,973,536	$66,375,861

8.2.5 Demand on Public Services

8.2.5.1 *Value of Proposed and Current Growth-Related Capital Improvements by Jurisdiction*

8.2.5.1.1 *Big Piney*

In their questionnaire, Big Piney estimated the cost of their paving and infrastructure projects at $7,000,000 between 2008 and 2018. A detailed list of their projected expenditures outlined in the follow-up meetings is included in Table 8-25.

Table 8-25 Big Piney upcoming infrastructure projects (Arthur 2008; Hurd 2008)

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
1st	Landfill groundwater monitoring	$125,000	Ongoing	Wyo Star savings	$0	$125,000
1st	Black Avenue	$856,650	2009	Town	$50,000	$806,650
1st	Mickelson Street	$520,525	2009	Town	$50,000	$470,525
1st	Noble Street	$323,375	2009	Town	$50,000	$273,375
1st	Fish Street	$320,688	2009	Town	$50,000	$270,688
1st	P.L. Lane	$634,325	2009	Town	$50,000	$584,325
1st	Miller Lane	$283,500	2009	Town	$50,000	$233,500
1st	Circle Way	$263,875	2009	Town	$50,000	$213,875
1st	Beck Street	$132,650	2009	Town	$50,000	$82,650
1st	Engineering	$767,185	2009	Town	$0	$767,185
1st	Highway 189	$361,128	2010	SLIB/Town	$0	$361,128
1st	Piney Drive	$486,030	2010	SLIB/Town	$0	$486,030
1st	Smith Avenue	$1,003,975	2010	SLIB/Town	$0	$1,003,975
1st	Fish Street	$101,750	2010	SLIB/Town	$0	$101,750
1st	Noble Street	$313,943	2010	SLIB/Town	$0	$313,943
1st	Mickelson Street	$363,005	2010	SLIB/Town	$0	$363,005
1st	Engineering	$521,801	2010	SLIB/Town	$0	$521,801
1st	Piney Drive	$632,900	2011	SLIB/Town	$0	$632,900
1st	Milleg Lane	$893,400	2011	SLIB/Town	$0	$893,400
1st	Engineering	$351,049	2011	SLIB/Town	$0	$351,049
	Total	**$9,256,754**			**$400,000**	**$8,856,754**

8.2.5.1.2 *Marbleton*

In the questionnaire, Marbleton listed their capital projects for 2009-2018 as a sewer line, new sewer facility, new water tower, truck, and lawn equipment. A detailed list of Marbleton's projected infrastructure expenditures outlined in follow-up meetings is included in Table 8-26.

Table 8-26 Marbleton upcoming infrastructure projects (Murphy 2008)

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
1st	Well House #7 Fluoride Treatment	$639,243	2009	Town	$48,596	$590,647
1st	Aerated Lagoon System with Power	$4,600,000	2009-10	Town	$2,679,582	$1,920,418
1st	Wind Turbines for Aerated Lagoon System	$500,000	2009-10	Town	$172,619	$327,381
1st	50,000 Gallon Water Tower Replacement	$979,800	2010-11	Town	$200,000	$779,800
2nd	Main Water Line East to West	$497,000	2009-10	Town	$100,000	$397,000
2nd	South Sewer Line Extension	$229,000	2009-10	Town	$100,000	$129,000
2nd	Alsade Drive Curb, Gutter, and Paving	$413,406	2009-10	Town	$50,000	$363,406
3rd	Eiden Subdivision Curb, Gutter, and Paving	$2,685,894	2011-12	Town	$150,000	$2,535,894
4th	Phase III of the Marbleton Street Project Sidewalks	$2,735,512	2012-13	Town	$200,000	$2,535,512
	Total	**$13,279,855**			**$3,700,797**	**$9,579,058**

8.2.5.1.3 *Pinedale*

In the questionnaire, Pinedale identified spatial expansion for the Clerk's Office, Planning and Zoning Department, and Municipal Court along with some Publics Works projects summarized in Table 8-27.

Table 8-27 Pinedale capital needs from questionnaire (Ecosystem Research Group 2008b)

Department	Capital Items	Spatial Expansion
Clerk's Office	None	$115-150,000 additional office space
Planning and Zoning	GIS database	County maintenance facility, 3 new parks of 230 acres added to town maintenance
Municipal Court	None	Facility expansion of $50-100,000

Department	Capital Items	Spatial Expansion
Public Works	SCADA water treatment system, water treatment facility and upgrades, and sludge removal and re-line	None

A series of meetings detailed Pinedale's sewer, water treatment, street, and facility needs through 2014. The complete list is included in Table 8-28.

Table 8-28 Pinedale upcoming infrastructure projects (Ninnie 2008)

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
1st	Phase V Sewer	$7,491,037	2010	Sales/Use tax	$2,000,000	$5,491,037
1st	Phase VI Sewer	$8,924,640	2010	Sales/Use tax	$0	$8,924,640
1st	EPA-Mandated Water Treatment	$3,800,000	2010	None	$0	$3,800,000
2nd	Street Repair/Improvements	$6,602,000	2010	None	$0	$6,602,000
2nd	Street Repair/Improvements	$5,182,000	2011	None	$0	$5,182,000
2nd	Phase VII Sewer	$7,486,384	2011	Sales/Use tax	$2,000,000	$5,486,384
2nd	Street Repair/Improvements	$4,544,000	2012	None	$0	$4,544,000
3rd	Phase VIII Sewer	$7,694,490	2012	None	$2,000,000	$5,694,490
3rd	Street Repair/Improvements	$4,307,000	2013	None	$0	$4,307,000
4th	Phase IX Sewer	$6,111,828	2013	Sales/Use tax	$2,000,000	$4,111,828
4th	Street Repair/Improvements	$1,368,000	2014	None	$0	$1,368,000
4th	Water Meter System	$3,200,000	2013	None	$0	$3,200,000
5th	Phase X Sewer	$2,755,689	2014	Sales/Use tax	$2,000,000	$755,689
5th	Town Hall	$5,500,000	2014	None	$0	$5,500,000
5th	Sewer Lagoon Expansion	$4,500,000	2014	None	$0	$4,500,000
5th	Water Meter System	$2,800,000	2014	None	$0	$2,800,000
	Total	**$82,267,068**			**$10,000,000**	**$72,267,068**

8.2.5.1.4 *Sublette County*

Sublette County government departments listed estimated departmental spatial expansion and capital items in their responses to ERG's questionnaires. These estimated needs are summarized in Table 8-29.

Table 8-29 Sublette County capital needs from questionnaire (Ecosystem Research Group 2008b)

Department	Capital Items	Spatial Expansion
Assessor	16 computers, software, 2 copiers, and 5 printers	500 square foot expansion increases existing space by 30%
Drug Court	3 computers, office furniture, upgraded urinalysis testing machinery, drug monitoring technology, and GPS locators	Double office space, add small lab facilities in new justice center
Emergency Management/ Sheriff's Office	Vehicles and support equipment	New law enforcement complex
GIS	Computer and plotter	None
Road and Bridge	Road project and construction equipment	None
Treasury	None	Space needed
Zoning and Planning	1 Computer per year	None
Elections	2 file cabinets, 2 computers, and trailer equipment	None
Environmental Health	2 computer stations, office furniture, bacteria water testing lab	400 square foot facility expansion triples existing space
Public Health	None	Spatial increase of 10% in conjunction with county building remodel
Waste Management	Cell construction for landfill air space, various equipment, and loader/dozer/trash compactor	20 acre expansion increases existing space by 50%

In follow-up meetings, Sublette County identified road projects anticipated through 2012 and potentially beyond. A detailed list of these projects follows in Table 8-30.

Table 8-30 Sublette County upcoming infrastructure projects (Lankford 2008)

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
1st	Calpet Highway	$25,000,000	2009-10	County	$3,000,000	$22,000,000
1st	Dry Piney Road	$10,000,000	2009-10	County	$0	$10,000,000
2nd	Guios Road	$6,000,000	2009-10	County	$0	$6,000,000

Priority	Project	Estimated Cost	Time Frame	Budget Source	Budget Amount	Shortfall
2nd	Horse Creek Road	$600,000	2009-10	County	$0	$600,000
3rd	Fremont Lake Road Bridge	$600,000	2010-11	County	$0	$600,000
4th	Middle Piney Road	$7,000,000	2011-12	County	$0	$7,000,000
4th	North Piney Road	$5,000,000	2011-12	County	$0	$5,000,000
5th	Fremont Lake Road	$1,200,000	Not defined	County	$0	$1,200,000
	Total	**$55,400,000**			**$3,000,000**	**$52,400,000**

8.2.5.2 *Traffic Accidents by County*

Automobile accidents have increased with traffic in Sublette County. Figure 8-7 describes the number of accidents and the percent change in accidents for the county. Between 1995 and 2007, traffic accidents have more than doubled. Of the accidents in 2007, 2% resulted in death and 26% resulted in injury (Wyoming Department of Transportation 2009).

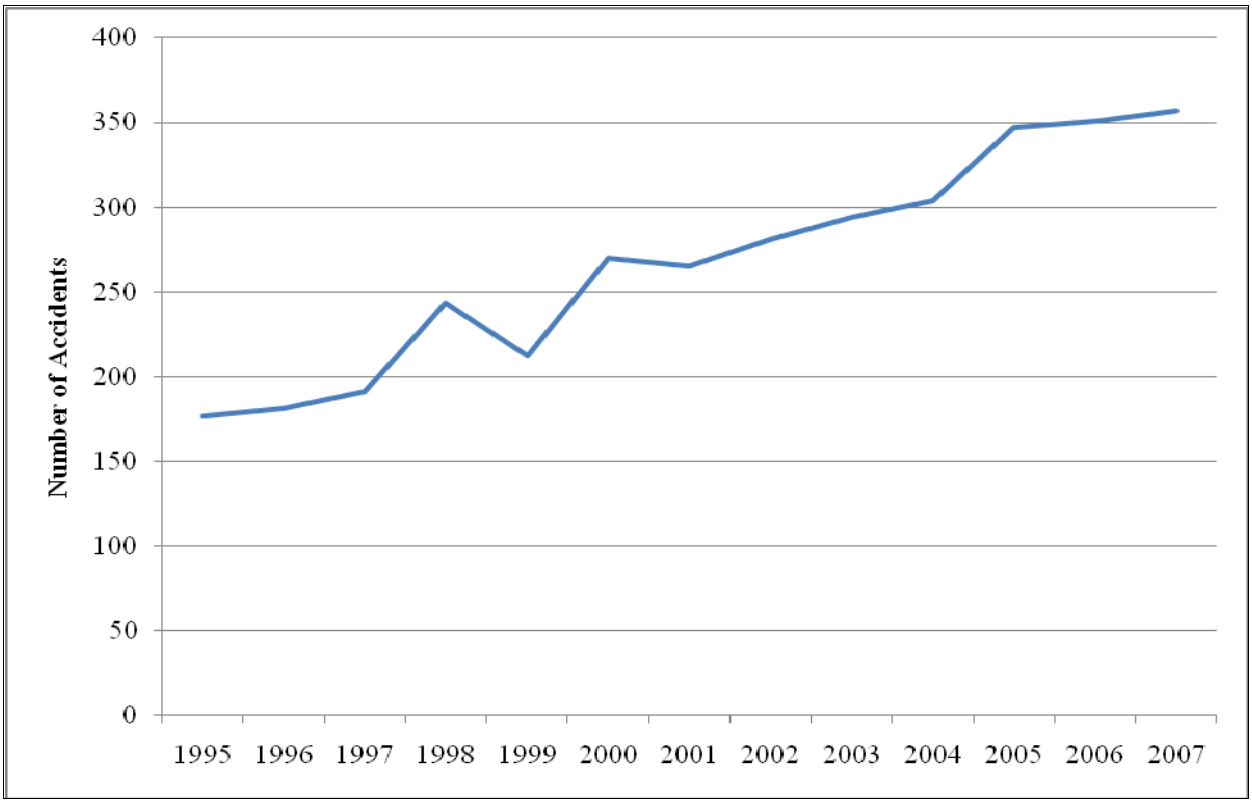

Figure 8-7 Vehicle-related accidents in Sublette County, 1995–2007 (Wyoming Department of Transportation 2009)

8.2.6 Housing

8.2.6.1 *Housing Availability: Rental Occupancy Rates*

In recent years, the Sublette County housing market has had a low vacancy rate for rental units compared to the state of Wyoming. As part of its semi-annual survey, the Wyoming Community Development Authority collects data on rental vacancy rates throughout the state. Rental units are defined as homes, apartments, mobile home lots, and mobile home lots with homes. Table 8-31 shows the vacancy rates for 2000–2008. Note that data were unavailable for the last half of 2001 and the first half of 2002 for Sublette County. Throughout the state, vacancy rates for the last half of the year are generally higher than that for the first part of the year.

Table 8-31 Rental vacancy rates in Sublette County and Wyoming (Wyoming Community Development Authority 2009)

Reporting Period	Sublette County Vacancy Rates	Wyoming Vacancy Rates
2001-1	4.88%	4.21%
2001-2	NA	4.36%
2002-1	NA	4.73%
2002-2	5.41%	4.62%
2003-1	4.00%	3.56%
2003-2	3.64%	4.10%
2004-1	1.69%	3.81%
2004-2	5.33%	4.81%
2005-1	4.17%	3.30%
2005-2	4.55%	3.51%
2006-1	1.89%	2.67%
2006-2	0.64%	2.44%
2007-1	2.29%	1.45%
2007-2	0.90%	1.81%
2008-1	2.84%	2.89%
2008-2	3.44%	3.93%

8.2.6.2 *Housing Availability: Existing Stock and New Construction of Housing Units by Category*

Residential construction has increased since 2000, as demonstrated by the increased number of residential building permits issued in Sublette County between 2000 (54 permits) and 2007 (263 permits). Residential permits are subdivided into the following categories: single family, duplex, tri- and fourplex, and multiplex (greater than four aggregate dwellings). Historical trends in building permits are summarized in Table 8-32. As illustrated, the greatest increase occurred in the single family category with 613 permits issues between 2005 and 2007. However, the number of building permits decreased over 60% between 2007 and 2008. Applications for building permits can increase when housing prices are high, often as a response to housing shortages. The decrease in building permits could indicate a decrease in the housing shortage (Meyers 2009).

Table 8-32 Building permits in Sublette County (Sublette County Planning and Zoning 2008; U.S. Census Bureau 2009)

Year	Single-Family Permits	Duplex Permits	Tri- and Fourplex Permits	Multiplex Permits	Total Residential Permits	Annual Percentage Increase in Residential Permits
2000	54	0	0	0	54	
2001	72	4	0	0	76	40.74%
2002	74	6	8	0	88	15.79%
2003	79	4	8	0	95	7.95%
2004	77	12	4	0	93	-2.11%
2005	179	0	0	6	185	98.92%
2006	177	0	0	20	197	6.49%
2007	257	6	0	0	263	33.50%
2008	100	2	3	0	105	-61.09%

8.2.6.3 *Housing Affordability*

Housing affordability is a calculation that determines the minimum income required to purchase a house of a given price. Using the average sales prices listed in Table 8-33, ERG determined the minimum income necessary to purchase a house at the average sales price in Sublette County. The following calculations assumed a 30-year fixed loan of 6% with the buyer providing 20% of the price as a down payment. Standard amortization schedules were used to determine the monthly payment, and this value was multiplied by 48 to arrive at the minimum qualifying income (National Association of Realtors 2009).

Table 8-33 Minimum qualifying income needed to purchase average home in Sublette County and Wyoming (Wyoming Community Development Authority 2009)

Year	Sublette County Average Sales Price	Minimum Qualifying Income in Sublette County	Median Family Income in Sublette County	Statewide Average Sales Price	Minimum Qualifying Income in Wyoming	Median Family Income in Wyoming
1997	$132,769	$28,224	$36,700	$91,714	$21,120	$48,412
1998	$141,904	$24,048	$36,700	$96,906	$22,320	$51,897
1999	$151,620	$26,256	$37,900	$101,517	$23,376	$55,624
2000	$174,653	$28,992	$40,400	$111,437	$25,680	$55,859
2001	$188,409	$34,368	$40,400	$116,469	$26,832	$58,541
2002	$195,077	$37,632	$40,400	$120,314	$27,888	$57,148
2003	$239,657	$39,840	$54,400	$130,294	$30,576	$56,065
2004	$264,384	$50,256	$56,300	$147,588	$32,784	$54,935
2005	$277,479	$57,312	$56,300	$160,497	$36,960	$55,250

Year	Sublette County Average Sales Price	Minimum Qualifying Income in Sublette County	Median Family Income in Sublette County	Statewide Average Sales Price	Minimum Qualifying Income in Wyoming	Median Family Income in Wyoming
2006	$334,073	$62,112	$59,400	$187,869	$43,248	$58,800
2007	$132,769	$76,896	$59,100	$265,044	$61,008	$58,500

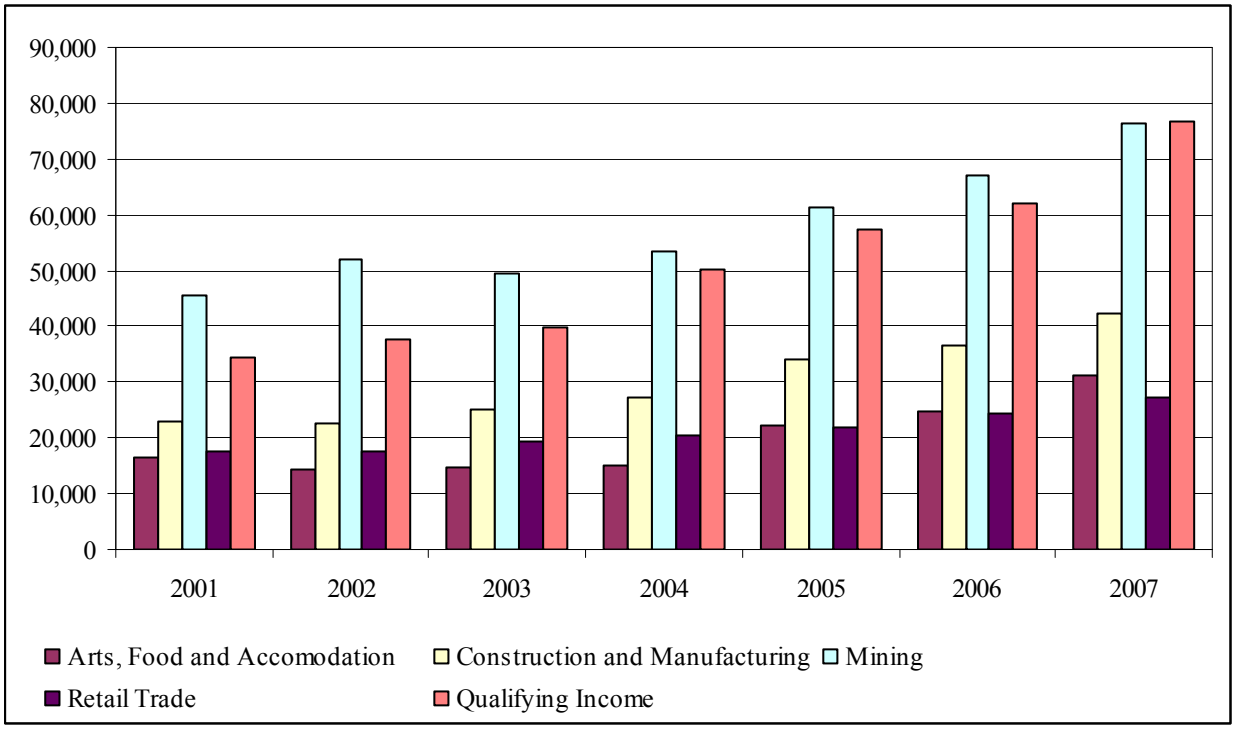

Figure 8-8 Sublette average annual income by sector and minimum qualifying income to purchase average home (Wyoming Community Development Authority 2009)

8.2.6.4 *Temporary Housing*

In 2008 and 2009, ERG administered a telephone survey to hotels, motels, and campgrounds in Sublette County. The results are summarized in Table 8-34. Respondents indicate that business has definitely increased since 2000. Of the nine businesses contacted in Sublette County, five indicated that over 75% of their visitors are from the oil and gas industry, with two businesses quoting a figure of 90%. Most establishments indicated a slight decrease in business during the winter months.

Table 8-34 Temporary housing survey (Ecosystem Research Group 2008d)

Hotel	Average Summer Visitors from Oil and Gas Industry Per Night
Baymont	148
Best Western Pinedale	94
Half Moon Motel	31
Lodge at Pinedale	69
Pine Creek Inn	32
Rivera Lodge	2
Teton Court Motel	20
Daniel Junction	5
Marbleton Inn	70
Total	**471**

Other temporary housing in the area includes EnCana's workforce facility, a semi-permanent tented housing area currently located in Jonah field that houses 150 to 200 people (Teeuwen 2009). Other oil and gas companies plan to house an additional 110 workers in similar facilities (Ecosystem Research Group 2008a). Operators also house employees in company apartments, bunkhouses, townhouses, and trailers. Industry estimated housing 55 people in this manner during 2007, 2008, and 2009 (Ecosystem Research Group 2008a).

Based on results of the telephone survey and industry questionnaire, approximately 856 people stay in temporary housing each night during the summer. With an 80% reduction in hotel occupancy during the winter, this number decreases to approximately 762 people (Table 8-35). According to Jacquet's estimate of 1,513 transient workers, this leaves approximately 657 people unaccounted for each night during the summer when peak drilling takes place. Many workers commute daily from Rock Springs and others stay in RVs and trailers outside of zoned campgrounds and trailer parks (Coburn 2009).

Table 8-35 Transient worker count by housing type and season (Ecosystem Research Group 2009)

Housing Type	Summer	Winter
Hotel	471	377
Workforce Facility	385	385
Total	**856**	**762**

8.2.7 Social Impacts

8.2.7.1 *Crimes Charged, Adult and Juvenile*

Violent index offenses including murder and non-negligent manslaughter, forcible rape, and aggravated assault, increased from two in 2000 to 17 in 2007. Property index offenses remained relatively stable,

even slightly decreasing, with 25 offenses in 2000 and 22 in 2007. Table 8-36 compares the number of offenses committed by adults and juveniles in 2000 and 2007.

Table 8-36 Adult and juvenile offenses, 2000 and 2007 (U.S. Department of Justice 2007)

Classification of Offense	2000 Adult	2000 Juv.	2007 Adult	2007 Juv.
Murder and Non-Negligent Manslaughter	0	0	0	0
Forcible Rape	0	0	2	0
Robbery	0	0	0	0
Aggravated Assault	1	1	14	1
Burglary	6	3	7	1
Larceny-Theft	9	4	10	1
Motor Vehicle Theft	3	0	2	1
Total Index Offense Arrests	**19**	**8**	**35**	**4**
Manslaughter by Negligence	0	0	0	0
Arson	1	0	0	0
Other Assaults	33	0	43	5
Forgery and Counterfeiting	0	0	0	0
Fraud	9	0	5	0
Embezzlement	0	0	0	0
Stolen Property; Buy, Receive, Possess	0	0	0	0
Vandalism	5	0	2	0
Weapons; Carry, Possess, etc.	0	0	0	0
Prostitution and Commercialized Vice	0	0	0	0
Sex Offenses (Except Rape and Prostitution)	2	0	1	0
Drug Abuse Violations	14	1	40	0
(1) Sale/Manufacture Subtotal	0	0	5	0
(2) Possession Subtotal	14	1	35	0
Gambling Offenses	0	0	0	0
Offenses Against Family and Children	1	0	6	0
Driving Under the Influence	63	0	95	0

Classification of Offense	2000 Adult	2000 Juv.	2007 Adult	2007 Juv.
Liquor Laws	28	2	63	11
Drunkenness	3	0	6	0
Disorderly Conduct	0	0	4	0
Vagrancy	0	0	0	0
All Other Offenses (Except Traffic)	52	1	177	3
Suspicion	0	0	0	0
Curfew and Loitering Law Violations	NA*	0	NA	0
Run-Aways	NA	0	NA	2
Total Arrests by Age Group	**244**	**13**	**517**	**25**
Total Arrests by Year	**257**		**542**	

* Not applicable

8.2.7.2 *Circuit Court Cases*

The number of juvenile arrests rose 92% from 2000 to 2007. According to Dayle Read-Hudson of Pine Creek Family Counseling in Pinedale, the last few years have produced more accounts of children bearing witness to violent crimes. Total arrests in Sublette County increased by 111% between 2000 and 2007. The county added 15 law enforcement officers between 2000 and 2006, but because of the increased arrest rate the number of major arrests per officer stayed consistent at around 13.

The Circuit Court data tells a similar story but in a different way (Table 8-37 and Table 8-38). The court groups its cases in two categories, citations and non-citations. Citations involve "tickets" given by an officer, while non-citations are actual charges brought by the county prosecutor. Therefore, the non-citation cases are more serious. Data for 2007 on citations and non-citations are available only through June 30; however, total non-citations through June 2007 are already 89% of the total non-citations for 2006. DUI non-citations for 2007 already have surpassed the DUI non-citations for 2006. For circuit court citations, traffic citations have seen the greatest increase, from 28 in 2000 to 3,787 in 2006.

Table 8-37 Circuit court citation totals (Boynton et al. 2007)

Year	DUI	Felony	Game & Fish	Other	Traffic	Total
2000	16	1	2	11	28	58
2001	24	9	3	30	49	115
2002	49	5	57	115	760	986
2003	20	9	82	114	2,883	3,108

Year	DUI	Felony	Game & Fish	Other	Traffic	Total
2004	17	6	100	104	2,726	2,953
2005	20	0	122	98	3,055	3,295
2006	50	3	131	231	3,815	4,230
2007*	3	3	26	65	1,982	2,079
Total Change 2000–2006	34 (213%)	2 (200%)	129 (6,450%)	220 (2,000%)	3,787 (13,525%)	4,172 (7,193%)

Table 8-38 Circuit court non-citation totals (Boynton et al. 2007)

Year	DUI	Felony	Game & Fish	Other	Traffic	Total
2000	2	3	3	30	11	49
2001	0	7	1	38	24	70
2002	8	23	0	84	58	173
2003	72	58	0	180	101	411
2004	104	47	18	170	99	438
2005	111	63	1	260	126	561
2006	59	51	8	207	72	397
2007*	60	30	0	130	132	352
Total Change 2000–2006	57 (2,850%)	48 (1,600%)	5 (167%)	177 (590%)	61 (555%)	348 (710%)

8.2.7.3 *Social Service Projections*

Projecting future needs in most areas of social service first requires defining the current load, or number of residents served per employee. In some cases the load is defined on a unit basis, such as number of detention beds, gallons of water, or cubic yards of landfill space. For example, there are six physicians practicing in Sublette County at the present time. The county has an estimated population of 8,750 residents in 2009, thus each physician has a current load of 1,458 patients. Assuming the current level of service is adequate, Sublette County will need 9.2 physicians in 2020 to meet the expected demands of 13,370 residents (Wyoming Department of Administration and Information 2009).

Table 8-39 Sublette County current and projected service needs (Ecosystem Research Group 2009; Gatske 2009)

Service	2009 FTE or unit of measure	Acceptable Load (2009)	2020 FTE Required or units anticipated
Physicians	6.0	1,458	9.2

Service	2009 FTE or unit of measure	Acceptable Load (2009)	2020 FTE Required or units anticipated
Physician Assistants	2.0	4,375	3.1
Nurses	2.5	3,500	3.8
Dentists	3.5	2,500	5.3
Emergency Medical Technicians	13.0	673	19.9
EMS calls	1211.0	7	1,850.0
Sheriff's Office and Law Enforcement	80.0	109	122.3

8.2.7.4 *Quality of Life Survey*

Community Satisfaction and Quality of Life Survey of Long-Term Residents of Sublette County is available online at http://www.sublette-se.org/.

The major findings of the survey are:

1. Overall satisfaction is slightly less than eight to 10 years ago which is mostly attributed to oil and gas development and the diversity of residents within the county.

2. People still feel most satisfied with their people/family/friends and the physical setting of Sublette County.

3. Newcomers, while seen as good people, are reported to lack friendliness and be the greatest change in the county of the past eight to 10 years.

4. Negative effects were almost exclusively brought by industry and growth.

5. The largest change occurred at the beginning of the boom.

6. Positive aspects perceived as non-industry/growth related.

7. The most salient issue for the county in the next 5 years is growth management.

8. Older respondents perceive financial betterment an effect of energy development more often than the young population.

9. Residents have a negative view of future county expansion at the current growth rate.

10. Half of all respondents reported negative impacts from environmental impacts.

11. Social relations decreased with energy growth.

9. LIST OF PREPARERS

Table 9-1 List of Preparers

Name/Role	Agency/Firm	Education	Years Experience
Travis Benton Environmental Scientist	Ecosystem Research Group	B.S. Forestry	11
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Morgan Davies Environmental Scientist Wildlife Biologist	Ecosystem Research Group	M.S. Ecology and Natural Resources B.S. Biology	8
Ryan Hanavan Senior Environmental Scientist	Ecosystem Research Group	Ph.D. Entomology M.S. Forest Entomology B.S. Resource Conservation A.A.S. Forest Technology	10
Hayley Hesseln Resource Economist Associate Professor	Ecosystem Research Group Associate	Ph.D. Forest Economics Bachelor of Commerce	16
Meredith Holden Office Manager References	Ecosystem Research Group	B.S. Business Management	15
Jeffrey Jacquet Socioeconomic Analyst	Sublette County	M.A. Sociology B.A. Sociology	6
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Johnny MacLean Senior Environmental Scientist Geologist	Ecosystem Research Group	Ph.D. Geology M.S. Earth Science B.S. Geology	9
Rosemary Moore Economist	Ecosystem Research Group	B.A. Economics M.A. Economics in progress	1
Simon Weseen Professional Research Associate	Ecosystem Research Group Associate	M.S. Agricultural Economics B.S. Biology B.S.A. Environmental Science	10

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APPENDIX A. INDUSTRY RESPONSE MEMO

In November and December, 2008, Ecosystem Research Group (ERG) sent data requests to all major oil and gas companies operating in Sublette County and surrounding counties. The companies were identified by the Bureau of Land Management's (BLM) Pinedale Field Office. A total of 23 companies were contacted. Responses were received from eight of the 23 companies surveyed. The data request follows.

DATA REQUEST

On November 14, 2008, Governor Freudenthal and Senator Enzi hosted a meeting in Pinedale, Wyoming between representatives of Sublette County, local municipalities, and the major energy operators in the county to discuss socioeconomic impacts from energy development. Much of the discussion focused on the importance of reliable information and the data needed to correctly understand and best characterize socioeconomic impacts. As part of the meeting, the energy operators in attendance agreed to provide data and projections for the county's upcoming Phase II report, which is available online at http://www.ecosystemrg.com.

In early 2008, ERG completed the first phase of a Socioeconomic Impact Study for Sublette County on behalf of the Sublette County Commissioners. The purpose of the first phase of the study was to identify the current socioeconomic impacts of energy industry development in Sublette County. This phase was completed with the best data available at the time of the report.

The purpose of the second phase is to estimate the net socioeconomic effects in Sublette County resulting from continued oil and gas development in both Sublette and surrounding counties. Forecasts of population growth and infrastructure requirements are estimates based on the best available information, making it important that the oil and gas industry be involved in the analysis.

The following data will help us formulate estimates that will more accurately project the net effects of economic development within Sublette County. This information is important because partial population estimates will be derived from employment effects. IMPLAN®, an economic modeling program, estimates the indirect and induced employment effects using the direct changes in employment by sector. ERG understands that there may be data the companies would like us to keep confidential. With our original company data requests and revisions on December 12, 2007, we handed out draft confidentiality agreements. We are including these signed agreements for your review and signature.

Please provide the following:

1. Number of workers per well per year (drilling phase)
2. Number of workers per well per year (production phase)
3. Number of workers per well per year (reclamation phase)
4. Number of workers per well per year (workover maintenance)
5. Production life span of well
6. Schedule of operations – drilling, production, reclamation, and workover projections for one, five, and ten-year timeframes
7. Total number of employees (contract, subcontract, part- and full-time) working in Sublette County during 2007 and 2008 and projected for 2009, including information you may have regarding families who accompany employees to the area.
8. Number of employees housed by company with location and type of company housing
9. Proposed camp and employee housing construction, including location, type of housing, and number of employees accommodated.
10. Total amount of taxes or other assessments on energy production in Sublette County paid in 2006 and 2007 to federal, state, or local government entities.

RESPONSES

Survey responses were received from eight of the 23 companies surveyed. Results indicate that employment is expected to remain relatively stable until 2013. At that time employment will decrease by approximately 500 employees and remain at that level until 2018. Table A-1 and Figure A-1 present this information, separated into development phases or work tasks. Note that these estimates are subject to change due to economic conditions and/or a fall in gas or oil prices.

Table A-1 Total FTE projections by phase, 2009–2018 (Ecosystem Research Group 2008a)

Phase	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Development Phase										
Drilling	1,137	1,176	1,199	1,217	1,238	713	689	666	642	642
Completion	151	151	151	108	108	108	108	108	108	108
Production	377	390	404	420	437	454	470	486	501	515
Reclamation and Pad Construction	210	194	127	94	90	78	61	61	61	61
Other										

Phase	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Workover	53	53	59	66	73	74	74	75	75	76
Miscellaneous Employment	85	85	0	0	0	0	0	0	0	0
Total Employment	**2,012**	**2,047**	**1,940**	**1,905**	**1,946**	**1,426**	**1,403**	**1,395**	**1,387**	**1,402**

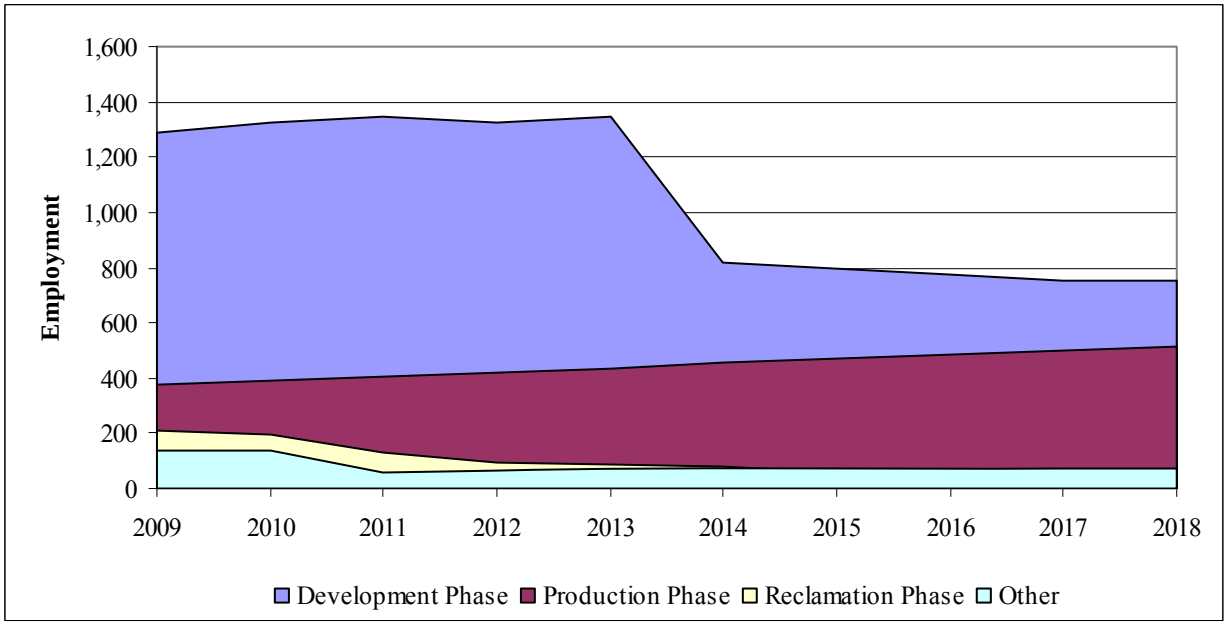

Figure A-1 Total FTE projections by phase, 2009–2018 (Ecosystem Research Group 2008a)

The most labor-intensive component of oil field development occurs in the early phase of development, as depicted in Figure A-1. Industry respondents anticipate approximately a 30% decrease in personnel between 2013 and 2014 as drilling activity slows. The drop in drilling is accompanied by a slow but steady increase in production workers as activity shifts to the production phase. Personnel needs are much lower during production as this phase requires much less hands-on work. Reclamation is the least labor-intensive task and becomes almost a negligible component as time goes on. Well workovers occur roughly every 10 years throughout the production phase and are a steady segment of employment throughout the normal 40-year production cycle for wells in Sublette County.

Energy operators also reported their taxes paid in 2006 and 2007. Table A-2 reports total taxes to honor the confidentiality of the operators. These numbers include responses from eight of the 23 companies surveyed.

Table A-2 Reported taxes paid by energy operators (Ecosystem Research Group 2008a)

Year	Reported Taxes
2006	$716,629,548
2007	$710,895,571

The industry responses indicated an increase of personnel living in the county between 2007 and 2008 with a slight drop in 2009. Table A-3 presents summarized responses. Worker and family member count was 1,478 in 2007, 1,702 in 2008, and 1,630 in 2009.

Table A-3 Number of personnel and family members living in Sublette County (Ecosystem Research Group 2008a)

Year	Workers and Family Members
2007	1,478
2008	1,702
2009	1,630

Industry also estimated the total production lifespan of a single well. Estimates varied from zero to 50 years, with the majority of the responses estimating between 30 and 50 years.

APPENDIX B. CUMULATIVE IMPACTS

Table B-1 identifies oil and gas-related NEPA projects by field office and the Bridger-Teton National Forest that have been reviewed by the BLM Pinedale Field Office (Zebulske 2008). When available, the number of possible wells, project area, life of plan (LOP), and drilling time have been specified. Project area is in acres and LOP and drilling time are in years unless otherwise specified.

Table B-1 Cumulative impact NEPA projects

BLM Office	Project	Year Initiated	Number of Wells	Project Area (Acres)	LOP (Years)	Drilling Time (Years)
Pinedale	Big Piney/LaBarge Coordinated Activity Plan	1991	600–900 (no limit specified)	NA	NA	NA
	LaBarge Platform	In discussion	NS	NS	NS	NS
	Jonah II Natural Gas Project	1998	497	29,200	NS	NS
	South Piney Natural Gas Development Project	2003	210	31,230	NS	7
	Jonah Infill Drilling Project	2006	3,100	30,500	63–105	13
	Pinedale Anticline Oil & Gas Exploration & Development Project	2007	4,399	198,037	60	15
	Liquids Gathering Anticline	2008	NS	NS	NS	NS
	Paradise 230kV Project	2008	NA	910	30 weeks	NA
	Rand's Butte Sour Gas Startup (Cimarex Energy Helium Development at Riley Ridge Field)	2008	9	618	28 months	4
	Rand's Butte Sour Gas Ongoing (Cimarex Energy Helium Development at Riley Ridge Field)	2008	4	618	40	NA
	Passive Seismic Project	2008	NA	NS	ND	NA
	Jonah 3D Seismic Project	NS	NA	NS	NS	NA
	Farley Oil (Private Land)	NS	NS	NS	NS	NS
	Gasco (Private Land)	NS	NS	NS	NS	NS
	True Oil (Private Land)	NS	NS	NS	NS	NS
	Wexpro (Private Land)	NS	NS	NS	NS	NS
	EOG (Private Land)	NS	NS	NS	NS	NS
	Intrepid Energy (Private Land)	NS	NS	NS	NS	NS
	Shell Anticline Seismic Project	2008	NA	NS	NS	NA
	Questar Year-Round Drilling Proposal	2004	700	197,345	NS	≥18

BLM Office	Project	Year Initiated	Number of Wells	Project Area (Acres)	LOP (Years)	Drilling Time (Years)
	Riley Ridge Natural Gas Project	1984	NS	NS	NS	NS
	EnCana Worker Camp	2008	NA	NA	NA	NA
Rawlins	South Baggs Area Natural Gas Development Project	2000	50 new 43 existing	12,352	35	10
	Seminoe Road CBM Pilot Project	2001	19	8,320	5–30	NS
	Blue Sky POD Coalbed Methane Project (Jack Sparrow)	2002	25	NS	10–20	0.5–1
	Scotty Lake Coalbed Natural Gas Pilot Project	2004	18 new 3 existing	2,880	25	3
	Wind Dancer Natural Gas Development Project	2004	12 new 6 existing	6,400	10–30	1
	Hay Reservoir CBNG Pilot Project	2005	8	1,920	20–30	NS
	Jolly Roger POD	2005	27	3,926	10–20	NS
	Brown Cow II POD Coalbed Natural Gas	2006	12 existing 12 new	3,692	10–20	0.5–1
	Seminoe Road Gas Development Project	2006	1,240	137,000	30-40	12
	Continental Divide - Creston Natural Gas Project	2006	8,950 new 2,305 existing	1,061,200	30–50	20
	Atlantic Rim Natural Gas Field Development Project	2007	2,000	270,080	30–50	20
	Hanna Draw Coalbed Natural Gas Pilot Project	2007	15	399	10–20	1.5
	Hay Reservoir Unit Natural Gas Infill Development	2007	17 already permitted 8 new	11,620	10–30	3
	Pathfinder Pipeline Project	2007	In EIS-to be completed	NS	NS	NS
	Catalina Unit CNBG Produced Water Disposal	2007	In discussion	NS	NS	NS
	Overland Pass Pipeline Project	2008	In reclamation	NS	NS	NA
	Chokecherry and Sierra Madre Wind Energy Project	2008	0	Decision in process	NA	NA
	Saratoga Well Field and Transmission Line	2008	5	NS	6 months	NA
	Cherokee West 3D Geophysical Project	2005	NA	87,304	NS	NA

BLM Office	Project	Year Initiated	Number of Wells	Project Area (Acres)	LOP (Years)	Drilling Time (Years)
	Creston/Blue Gap II Natural Gas Development Project	2005	1,250	184,000	30–50	10–15
	Pittsburg & Midway Coal Mining Co. Exchange Proposal	2005	NA	NA	NA	NA
	Brown Cow POD	2004	12	1,600	10–20	NS
	Desolation Flats Natural Gas Field Development Project	2004	592	233,542	20	NS
	Doty Mountain Plan of Development	2004	24 exploratory, 2 deep injection	1,920	10 –20	NS
	Red Rim Plan of Development	2004	16 exploratory, 2 deep injection	3,200	10 –20	NS
	Cow Creek POD	2002	14 exploratory CBM 2 injection	2,050	10–15	NS
	Continental Divide/Wamsutter II Natural Gas Project	2000	2,130	1,061,200	30–50	20
Rock Springs	Fontenelle Natural Gas Infill Drilling	1995	2,392	179,760	NS	NS
	Continental Divide/Wamsutter II Natural Gas Project	2000	2,130	1,061,200	30–50	20
	Vermillion Basin Natural Gas Exploratory & Development Project	2002	56	92,490	50	5
	Desolation Flats Natural Gas Field Development Project	2003	385 new 592 previously approved	233,542	30–50	20
	Lower Bush Creek Coal Bed Methane Exploratory Pilot Project	2003	20	3,500	NS	NS
	Little Monument Natural Gas Project	2003	31	3,857	15–20	3
	Copper Ridge Shallow Gas Exploration & Development Project	2003	89	24,953	15–20	4

BLM Office	Project	Year Initiated	Number of Wells	Project Area (Acres)	LOP (Years)	Drilling Time (Years)
	Pacific Rim Shallow Gas Exploration & Development Project	2004	120	47,597	15–20	4
	Bitter Creek Shallow Oil and Gas Development Project	2005	61	17,961	15–20	4
	Monell Enhanced Oil Recovery Project	2006	126 new, 146 existing, 123 of those plugged	10,120	20–25	6
	Hiawatha Regional Energy Development Project	2006	4,208	157,361	60	30
	East LaBarge Gas Exploration & Development Project	2007	184 new 99 existing	13,698	50	10
	Devon Energy Drilling Proposal	2008	2	NS	NS	NS
	Luman Rim Project	2008	58 new 8 existing	20,828	30	5
	Normally Pressured Lance Natural Gas Development Project	2008	85 new 14 existing	70,155	30	5
	Puma Prospect	2008	13 new 2 existing	9,600	30	5
	Desolation Road Exploratory Gas Well	2009	2	NS	NS	NS
	Horseshoe Basin 3D Seismic Survey	2008	NA	30 sq. miles	NS	NA
	Rubicon 3D Seismic Survey Project	2008	NA	140	NS	NA
	Pit 14 Coal Lease-By-Application	2006	NS	1,399	20	NS
	Dickie Springs Placer Gold Exploration Project	2005	NA	14	NS	NS
	Hay Reservoir 3D Geophysical Project	2004	NA	178,560	NS	NA
	Monell CO2 Pipeline Project	2003	NA	NA	NA	NA
	South Jonah 3D Vibroseis Project	2002	NA	262,400	NS	NA

BLM Office	Project	Year Initiated	Number of Wells	Project Area (Acres)	LOP (Years)	Drilling Time (Years)
	Ten Mile Rim Coal LBA & ROW	2004	NS	2,242	NS	NS
	West Flank (Wild Bunch) 3D Geophysical Exploration Project	2004	NA	135,040	NS	NA
	Kennedy Oil Pilot Exploratory Coal Bed Methane Project	2002	NS	10,240	NS	NS
	Jim Bridger Power Plant Flue Pond Expansion Project	2002	NA	267	30–40	NA
	Quantum Adobe Town 2D Geophysical Project	2002	NA	NA	NS	NA
	Wolverine Exploratory Drilling Proposal	2001	3	NS	NS	NS
	FMC Corporation's Proposed Haul Road Project	2000	NA	NA	NS	NA
Kemmerer	Horsetrap Natural Gas Project	2001	26	12,400	NS	2
	Jonah Bridger to Opal Natural Gas Project	2006	0	13,680	±30	NS
	Bear Canyon Exploratory Development	2007	1	47,058	NS	NS
	Moxa Arch/Moxa Arch Area Infill Gas Development Project	2008	1,861	475,808	40	10
	Bell Butte Water Pipeline Project	2007	NA	369,992	NS	NA
	Absaroka Ridge 3D Geophysical Project	2005	NA	51 sq. miles	NS	NA
	Three Forks 3D Geophysical Project	2005	NA	11,456	NS	NA
	Hams Fork 3-D Geophysical Project	2004	NA	45.3sq.miles	NS	NA
	Smiths Fork Road Improvement Project	2002	NA	NA	NS	NA
Lander	66 Water Pipeline Project	2008	NA	NA	NS	NA
	Beaver Creek CBNG Project	2008	228	16,518	NS	NS
	Gun Barrel, Madden Deep, Iron Horse Natural Gas Project	2008	1,470	147,335	50–55	10–15

BLM Office	Project	Year Initiated	Number of Wells	Project Area (Acres)	LOP (Years)	Drilling Time (Years)
	Pappy Draw Exploratory CBNG Pilot Project	2008	NS	48,350	NS	NS
	Devon Bairoil to Beaver Creek CO2 Pipeline Project	2007	NA	48 miles	NS	NA
	Crooks Gap Seismograph Project	2002	NA	155 miles	NS	NA
	WesternGeCo Geophysical Project	2001	NA	NS	NS	NA
Bridger-Teton National Forest	Plains Exploration Field Development	2007	137	14,080	NA	NA
	Lower Valley Energy Natural Gas Pipeline Project	2006	NA	NA	NS	NA
	Geothermal Leasing	2009	NA	NS	NS	NA
	North Zone OHV Project	2009	NA	NS	NS	NA
	Hoback Basin Non-Recreation Permit Renewals	2008	NA	NA	NA	NA
	Oil and Gas Leasing Decision	2008	NS	44,720	NS	NS
	Gros Ventre Mineral Exploration	2008	NS	NS	NS	NS

NA = Not available
NS = Not supplied

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