

Comments on Draft Supplemental Environmental Impact Statement for the Pinedale Anticline Project Area

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The Draft Supplemental Environmental Impact Statement (SEIS) for the Pinedale Anticline Project Area discusses the proposed long-term development of natural gas on 198,034 acres, consisting of 158,000 acres of federal land, 9,800 acres of State of Wyoming land, and 29,800 acres of privately owned land. The proposed action (alternative B) provides year-round drilling, completions, and production of up to 4,399 additional wells on up to 12,278 acres of new disturbance, including well pads, roads, pipelines, and other ancillary facilities within the PAPA. Alternative C consists of the same project components as Alternative B, but is spatially different. Alternative A is the no action alternative.

The following comments on the SEIS focus on the weaker parts of the socioeconomic analysis. My comments fall into three major themes. First, BLM has focused on the socioeconomic benefits possibly associated with Alternatives A and B but has largely ignored the likely socioeconomic costs. Second, has overemphasized the importance of the natural gas industry to the local economy and failed to consider the possibly adverse effects of accelerated natural gas development on important parts of the local economy. Third, BLM has discussed some of the adverse environmental consequences resulting from accelerated natural gas development, but has failed to translate these consequences into estimated economic costs.

I. After reviewing the SEIS, it is apparent that BLM has emphasized the economic benefits of natural gas development in the PAPA, but has failed to adequately address many of the economic costs likely associated with accelerated natural gas development and production, including the costs to local, county, and state governments.

SEIS provides estimates of the tax revenues distributed to Sublette County from ad valorem and severance tax collections. In addition, SEIS discusses a six-fold increase in Sublette County's assessed property valuation and Payment in Lieu of Taxes paid to state and county governments. However, there are large costs associated with natural gas development, and the associated increases in transient and residential population and industrial activity, and BLM fails to discuss these costs. Governments in the PAPA are currently struggling with updating, expanding, and repairing the public infrastructure and are already experiencing some of these costs. Recent expenditures includeⁱⁱ: 1) Pinedale Sewage Lagoon- A new ultraviolet sewage treatment facility has been built in 2006 in order to handle increased and anticipated waste. Total Cost: ~\$2 Million Dollars; 2) Pinedale 2005 water/sewer replacement project – Recently completed re-leveling and re-surfacing of Tyler Avenue, replacement of sewer and water lines under Tyler, and replacement of valley pans. Cost: ~\$2M; 3) Pinedale Infrastructure Project- Water and sewer replacements and upgrades throughout the town to replace aging infrastructure and in anticipation of increased usage due to residential and commercial growth. Cost: \$10.6 million; 4) Marbleton Curb and Gutter Project: Existing streets and subdivisions in town just completed (2006), several new subdivisions will

require additional curb and gutter projects. Total Cost thus far: \$2,110,000; 5) Marbleton water well to be drilled in Spring of 2007 to accommodate new residential and commercial units; 6) Pinedale Town Shop – New facility required for the increased maintenance associated with new town annexations – cost unknown at this time; 7) Sublette County Library Expansion – 5 Million Dollar expansion slated as library patronage has quadrupled in the past two to three years and the need for increased community meeting space has grown. Current community meeting space is inadequate to hold the various public meetings and hearings associated with energy development, not to mention the various private meetings held by energy firms; 7) Marbleton Town Hall – built in 2006 for \$2.8M to accommodate larger town council meeting attendance and the growing need for a larger community meeting space; 8) New Rural Health Care Board (Special District) Medical Clinics in Pinedale and Marbleton – The number of monthly office visits in Pinedale has increased, especially roughly 2000 to 2005; 9) Sublette County Maintenance Buildings -- New county shop built for 5M due to increased maintenance demands from an expanding and deteriorating road system.

Another example of increasing costs to county governments can be found in the SEIS (page 3-21) discussing Sublette County Sheriff's difficulty in hiring and retaining sufficient officers.

II. After reviewing the SEIS, it is apparent that BLM has emphasized the economic benefits of natural gas development in the PAPA, but has failed to adequately address many of the economic costs likely associated with accelerated natural gas development and production, including the costs of compromised air quality, water quality, reduced populations of wildlife, threats to endangered species, increased noise, and others. These effects are discussed in SEIS (p. 4-16), but SEIS makes no effort to quantify these recognized effects. However, peer reviewed methods for quantifying both the non-market and market costs of changing environmental quality have been developed by economists and are readily applicable to the present case. For a catalog of these methods see Freeman (2003). For a complete socioeconomic analysis, BLM should adapt these methods to conditions in the PAPA area to obtain a complete catalog of estimates of the economic consequences of Alternatives A and B.

III. In the SEIS, BLM has emphasized the importance of the energy extraction industries, to the apparent exclusion of other industries and other sources of income. However, this emphasis is not supported by the data. In the last 30 years, economies in the West have evolved from being highly dependent on extractive industries to being much more diverse, relying on a variety of economic sectors for stability and growth. (Bennett and McBeth, 1998). A recent study by the Sonoran Institute examining the impact of public land on economic well being in eleven western states found that only three percent of western counties could be classified as resource-extraction dependent (Rasker, et al., 2004). The secondary nature of the resource extraction sectors is also true in Lincoln, Sublette, and Sweetwater counties, those likely to be the most heavily impacted by Alternatives B and C. For example, in Table 3.5-3 or the SEIS, entitled "Employment and Earnings Associated with Natural Gas Development from 2000 to 2005," BLM estimates that total production and development earnings in 2004 were \$303,539,123 and \$14,300,972, respectively. The total of the two represents 16 percent of total personal income Lincoln, Sublette, and Sweetwater counties.

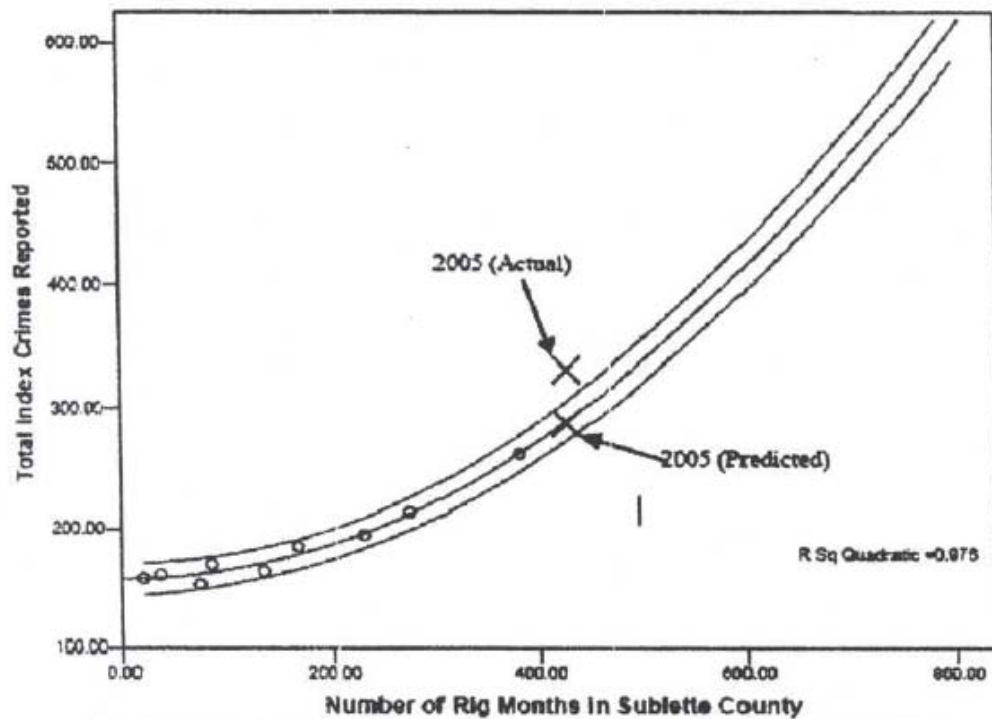
More importantly, natural gas earnings are dominated by other important sources of personal income, including transfer payments (\$221,706,000), dividends and rents (\$358, 839,000), and proprietors income (\$183,635,000) (U.S. Department of Commerce, 2006). In Lincoln, Sublette, and Sweetwater counties these sources of income represented 40, 49, and 35 percent of personal income, respectively.

IV. In the SEIS, BLM has emphasized the importance of the energy extraction industries and some of the likely adverse consequences for environmental and social quality, but has failed to make the economic connection between the two. There is a vast and growing body of research evidence suggesting that environmental and social amenities, which are likely to be compromised by natural gas development and production, are important determinants of economic growth in western economies (Johnson and Rasker, 1993; Johnson, 2001, Crompton, et al., 1997; Deller, et al, 1998, Lorah, 2000; Marcouiller and Deller, 1996; Power and Barrett 2001).

The evidence in this body of research suggests that, even if the estimates of short term economic benefits contained in the SEIS are taken as accurate, the long run effect of natural gas development could be to place Lincoln, Sublette, and Sweetwater counties at an economic disadvantage, because their environmental and social amenities have been compromised. Indeed, a recent study by the USDA has found that counties pursuing a strategy of economic growth based on recreation have enjoyed greater economic growth, lower poverty rates, higher labor force participation rates, and greater improvements in other social indicators than other counties (Reeder and Brown 2005).

V. In the SEIS, BLM acknowledges that “Changes in employment and income trigger impacts on community services, social structures, and lifestyles (p. 4-30).” But BLM fails to make a connection between this recognition and serious discussion of the potential economic costs of these likely consequences of accelerated natural gas development. One consequence apparently has been an increase in crime rates and arrests, largely related to increases in drug use. A report by the Sublette County and Prosecuting Attorney finds that crime rates and arrests increased at an annual rate of 15 percent from 2000-2004, but accelerated to 30 percent from 2004-2005. The total index of crimes is “highly statistically correlated with gas and oil field activity”, as illustrated in the graph below (Barnhart 2006).

Rig-Based Trend of Reported Index Crimes 1996-2004



Source: Wyoming Unified Crime Reporting 1996-2004; Driving Records Inc. 1996-2004. Prepared by: Jeffrey Jacobson - Sublette County, WYO/PIG.

The report also finds that “drug use among gas industry employees ...has been identified as a significant and growing problem (p. 3)” but also that “there is a ‘trickle-down’ effect that has become an overwhelming problem...(p. 3).” This effect is being seen in an increase in the number of juveniles in the criminal justice system, growing strain on law enforcement officers, and increased drug use. The economic costs of crime related to drug use in the U.S. has been estimated at over \$100 billion (National Institute of Drug Abuse, 1992). The quantification methods are relatively straightforward and could be adapted to conditions in PAPA.

VI. In the SEIS, BLM acknowledges that “Changes in employment and income trigger impacts on community services, social structures, and lifestyles (p. 4-30)” But again there is a failure to make a connection between this recognition and serious discussion of the consequences for the economic well-being of long-time local residents. One set of likely consequences is social, cultural, economic, and environmental disruptions viewed unfavorably by local residents. (See, for example, Fuller 2007).

SEIS analysis focuses on increasing wages as an indicator of improved economic well-being. However, this focus ignores the fact that rapid growth will change the character of the local community and that these changes will be seen differently by original residents and in-migrants. Economic theory provides a cogent argument that original residents and businesses are likely to suffer deteriorating economic well-being as a consequence of rapid natural gas development (Bartik 1991). In-migrants will be those that find community changes most attractive or least unattractive. Local wage increases will be sufficient to attract workers who view the changes as favorable. Conversely, original residents will view the changes unfavorably and the wage adjustments needed to attract in-migrants will be insufficient to compensate them for the qualitative changes to the local community because of substantial mobility costs. Similar types of

losses may be experienced by local businesses, especially if their production technologies are linked to resources that deteriorated in quality or quantity as growth continues.

The likelihood of declining well being for original residents has led a leading economist specializing in local economic development to conclude:

“The possible loss of the special characteristics of a unique place is an argument for economic development policies that only prevent decline of a local area, and against economic development policies that cause rapid growth. Preventing the loss of a sense of place is a possible benefit of only preventing the decline of an area. The loss of a sense of place is a possible cost of encouraging rapid job growth in an area (Bartik, p. 76)”

VII. In SEIS, BLM states it will violate the Clean Air Act by allowing activity that will cause the exceedance of air quality standards (increments) in Class II airsheds. The NO₂ Class II increments will also be exceeded in and near the Pinedale Anticline field. SEIS Tables M-1, M.15, M.29. PM₁₀ Class II increments will also be exceeded at least during the initial stages of development. SEIS Tables M.15, M.29. From the standpoint of socioeconomic impacts, SEIS conclusion that “...there would be no violations to applicable federal and state air quality standards (SEIS vi)” is not salient. This is because the impacts of many common forms of air pollution, including NO₂, Ozone, and PM₁₀ have no known thresholds below which these pollutants do not adversely impact human health (except zero) and “adverse health effects can occur at pollution levels lower than ambient standards (p. 376)” (Tietenberg 2006). In other words, the additional pollution resulting from accelerated PAPA development is very likely to adversely affect the health of area residents, workers, and visitors.

It is well established that PM is associated with premature mortality, chronic illness, hospital emissions, and respiratory symptoms/illness, while ozone-related adverse health consequences include chronic illness, hospital admissions, and symptoms/illnesses not requiring hospitalization (Akeson, et al., 1999, Exhibits 4-1 and 4.2).

Moreover, the science of quantifying the economic consequences of air pollution (and air pollution control) is one of the most well developed topics in environmental economics. The methodologies used are well established, peer-reviewed, and used by other federal agencies. For example, the cost of avoiding illness (COI) is often used as a lower bound estimate for peoples’ willingness to pay to avoid illnesses. COI estimates for respiratory illnesses range from \$6,300 (Burnett, et al. 1999) to \$12,000 (Schwartz 1994) per incident.

A more complete analysis of Alternatives B and C requires that BLM adapt extant methodologies to conditions in and around PAPA to produce quantitative estimates of the economic costs resulting from the adverse health effects of air quality deterioration.

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ⁱⁱ The project descriptions and costs were provided by Jeffrey Jacquet, Sublette County Socioeconomic Analyst, March 27, 2007.