# ANALYSIS OF THE SECONDARY EFFECTS OF THE WESTSIDE AND MIDDLE FORK WATER DEVELOPMENT PROJECTS

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# CHAPTER I

## Introduction

### General Problem

Although agricultural, industrial, municipal, and recreational demand for water has continued to grow in recent years, federal support for water development projects has dwindled. Several western states, especially Wyoming, have decided to expand their own programs to compensate for contractions in federal water development programs. The water planning and development agencies of these states have entered a field new to them. Previously the Army Corps of Engineers and the Bureau of Reclamation have borne the principal responsibilities for planning and overseeing the construction of large-scale water development projects. State agencies have just begun to formulate policies and implement procedures for planning, evaluating, selecting, financing, constructing and operating state water development projects. The shift of water development responsibilities to state government has many implications for the planning, evaluation and selection of water projects.

### Practical and Theoretical Significance

Benefit-cost analysis has been used in planning and evaluating federally supported water projects ever since passage of the Flood Control Act of 1936. This act declared that the benefits, to whomsoever they may accrue, of federal water projects should exceed costs. While federal agencies have relied heavily upon the criterion of economic efficiency to evaluate the expected performance of proposed water projects, in the past they have included secondary benefits arising from jobs created indirectly from projects. But since 1973, the principles and guidelines of the Water Resource Council have largely limited analyses of economic efficiency to only the primary (direct) benefits and costs of water projects.

Given the shift in responsibilities for water resource development to the states, the federal accounting stance, for which the federal principles and guidelines were drafted, is no longer applicable.

States may want to institute their own policies and procedures for water resources planning, ones consistent with their own goals and oriented from their own accounting stance. If a state primarily wants to increase its economic production, then economic efficiency should be the principal criterion used to evaluate proposed water projects. With this goal a state would concern itself only with those benefits and costs which accrue to or are borne by its residents. A benefit-cost analysis from the state point of view can not evaluate the total (i.e., primary and secondary) effects of a project as easily as a benefit-cost analysis from the federal point of view. From the federal viewpoint, secondary benefits and costs can be presumed to cancel each other out; thus, they can be ignored. But from the state viewpoint, secondary benefits may be significantly less than or greater than secondary costs; thus, they need to be identified, measured and included within analyses of state water projects.

A state could choose to use its water development program not only to increase economic activity, but also to redistribute income and economic growth to depressed areas. If this is the case, state officials will want to know how benefits from any prospective project will be distributed. Such information would also help in determining whether project beneficiaries could afford to support a project through users fees or other special assessments.

While the rationale behind including indirect effects and distributional effects within the framework for evaluating state water projects is clear, the practicalness of attempting to do so is not. Can information on these effects be obtained in a readily useable and interpretable form? In recent years,

economists and other social scientists have developed a new field of study called socioeconomic impact assessment. This field of study has developed specific methods and knowledge for identifying, analyzing, and evaluating the socioeconomic impacts resulting from a particular action. Researchers in this field have developed a number of techniques and models that assess the expected impact of developing large-scale energy projects in rural areas, but nobody has attempted to determine whether such models could be readily adapted and used to assess the distributional consequences and indirect benefits and costs of proposed water projects. If it is practical to do so, then information from a socioeconomic impact assessment could be used to expand the effects included within the benefit-cost framework for planning and evaluating a proposed project and to help evaluate the distributive effects of the project.

Objectives

The objective of this study is to demonstrate that a state-of-the-art impact assessment model can be used to identify and quantify the expected indirect effects and distributional effects of state water development projects. Embodied in this overall objective are the following specific objectives.

1. To identify and quantify the expected indirect effects and distributional effects of developing the proposed Westside Irrigation project in Wyoming.
2. To identify and quantify the expected effects for the proposed Middle Fork project in Wyoming.
3. To discuss how inclusion of the expected indirect benefits and costs, and the expected distributional effects contributes to the economic analysis of both the Westside and Middle Fork projects.

Presently the Wyoming Water Development Commission is planning and evaluating approximately 30 potential state projects. The techniques used in

this study to identify indirect effects and distributional effects of projects are readily available for further use in project planning and evaluation.

## CHAPTER II

## Problem Setting

Throughout this century the construction of federal water development projects (i.e., water reservoirs and irrigation systems) has been seen as a boon for economic growth in the West. From the viewpoint of host communities and states, federal water projects provide substantial benefits and impose only minor costs. Construction of reservoirs and irrigation systems, for example, creates additional business activity and employment in the local construction and agriculture sectors. As business activity and employment in these sectors increases, local construction workers, farm workers, construction companies and farm operators gain direct benefits from a project through additions to their incomes. Another important category of project impacts is its secondary effects. The increases in business activity and employment in the local construction and agricultural sectors typically increases business activity and employment in other local business and service sectors that are either forwardly linked or backwardly linked to the sectors directly effected by a water project. The income gains resulting from these indirect increases in business activity and employment are secondary benefits captured by the host community and state. Other secondary benefits from water project that typically are captured by host communities and states include state and local tax base expansion and population growth or stabilization.

Federal water projects, when costs are examined, also appear desirable from the viewpoint of host communities and states because most of their direct

and indirect costs are borne by individuals and businesses located elsewhere. The main cost imposed on host communities and states are for any additional public services and infrastructure needed to support the population growth induced by a project. Given that the benefits of water projects are received mainly by those in the immediate vicinity, while the costs of projects can be shifted elsewhere certainly explains why people in the western states ardently support federal water development programs. From a local perspective, it is perfectly rational to support the building of water projects in one's region, especially if most costs can be shifted elsewhere.

From a national efficiency viewpoint, society can be assured that projects where total benefits to society exceed total costs are good for society. This test, referred to as the Hicks-Kaldor criterion is generally regarded as the efficiency criterion to follow in the selection of federal water projects. Local arguments for federal funding for projects that fail this test are essentially arguments for a "beggar-thy-neighbor" approach for local economic development.

The recent shifting of responsibilities for water development programs to states from the federal level also shifts much of the total costs associated with water projects as well. With the change in responsibilities states can now use the Hicks-Kaldor criterion to test whether projects are efficient from their own perspective. Some projects that are not economically efficient from the national perspective may be efficient from a state perspective, but many projects will be found to be inefficient from either perspective.

The recent shift in water development responsibilities back to state governments has a number of implications. First, much of the total costs of constructing water projects has also shifted back to states. Second, many

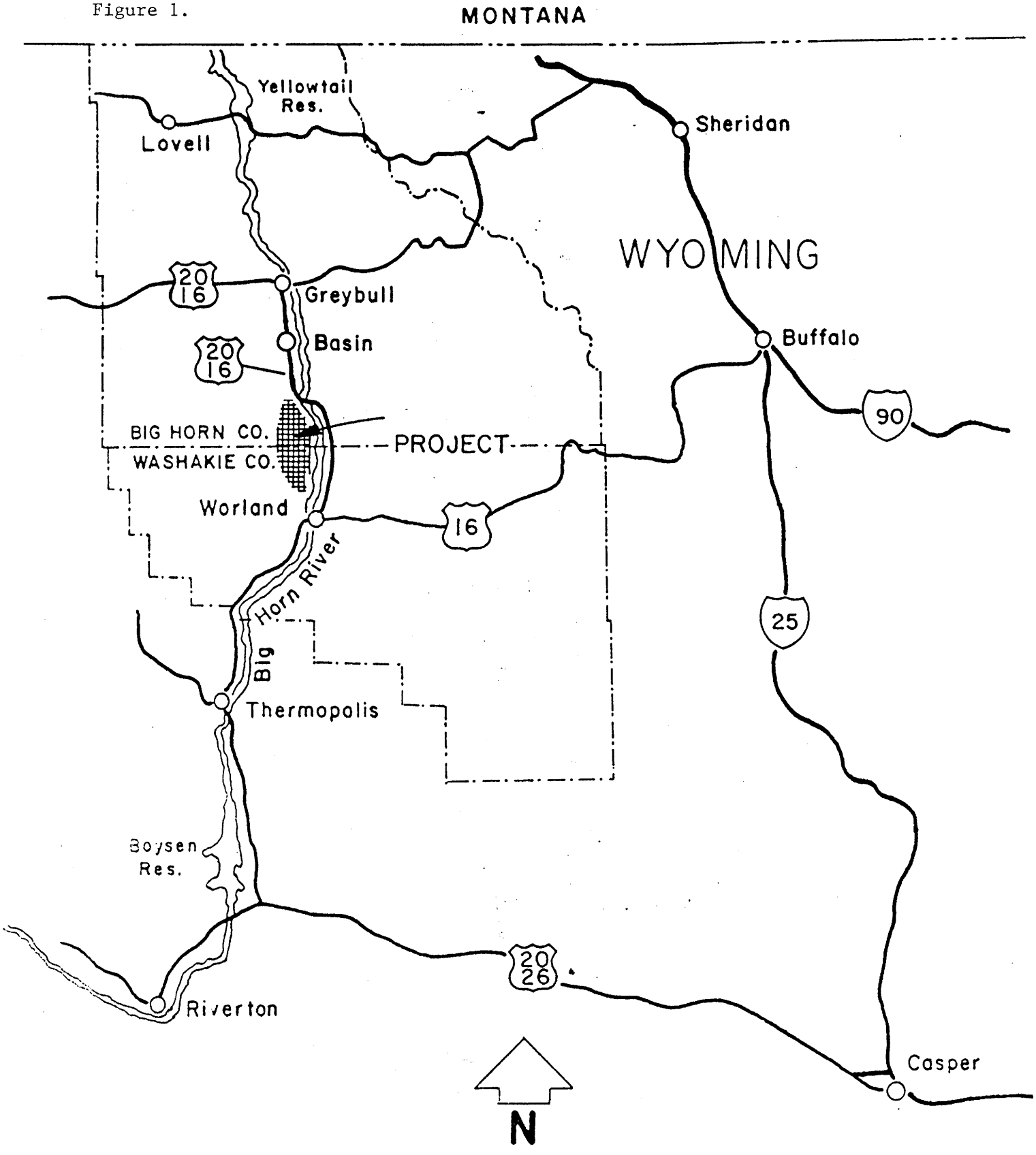
proposed projects that would have been desirable for states had they been built with federal funds, will not be efficient for states to build. Third, states will need to carefully scrutinize their choice of projects for state funding (i.e., choose mainly those which will provide net economic benefits) or else water development will stymie rather than promote a state's economic development. Each of these implications suggest that the consequences of alternative state projects need to be thoroughly studied from the state perspective; and that the consequences may prove to be far less attractive to states, as they traditionally have been. The consequences for Wyoming of building water projects (i.e., the proposed Westside and Middle Fork projects) may not be well understood.

Westside Irrigation Project

The proposed Westside Irrigation Project is located in Washakie and Big Horn counties between the cities of Basin to the north and Worland to the south (Figure 1). The development would take place along the west side of the Big Horn Canal, a privately owned canal which is currently used for irrigation purposes. The additional water used by the project would irrigate land in addition to that already being irrigated by the Big Horn Canal. Project lands are upper benches which lie primarily above and to the west of existing irrigated acreage in the area. Presently, the project lands are used mostly for grazing of livestock. The project is motivated by the potential to increase the value of the public rangeland by converting its use to irrigated crop production. Without the project, the Westside area would continue to be used as rangeland.

Several studies of the Westside Irrigation Project have been done. In the early stages of analysis the proposed project assumed development of about 21,000 acres for irrigation purposes. More recent reports however, have

Figure 1.




SOURCE:
Nelson Engineering, Inc. Westside Project: Plan Formulation Working Document. February, 1985.

PROJECT LOCATION MAP

scaled down the amount of irrigable acres to be developed. A common project size in various studies is 9,026 acres. Both project sizes will be considered in this analysis.

The water for irrigation of the 9,026 acres would come from Boysen Reservoir which is located near Thermopolis. The water in Boysen Reservoir would flow into the Big Horn Canal. The total water requirement for irrigation of the 9,026 acres would be approximately 20,363 acre feet of water annually. If development of 20,718 acres took place it would require 63,000 acre feet of water annually. This water would be pumped from the river into the Big Horn Canal with high volume pumps. In turn, the water would be pumped under pressure to fields.[1]

Much of the terrain in the project area is irrigable only by sprinkler systems. Because land that would be affected by the project are terraces, the project is assessed on the basis of side-roll or hand-move sprinkler system which would minimize the difficulties of irrigating slopes.[2]

In 1980 the population of Washakie and Big Horn Counties was 11,896 and 9,496 respectively. The population increased 20 percent in the last decade after two decades of decline.[3] Most of the work force in the area is employed in manufacturing or minerals industries. Agriculture employs 7.5% of the work force in the area.

Crop Production

Currently, the main crops grown in the project area are sugar beets, malt

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[1] In actuality parts of the 21,078 acres would be at different elevations. For more detail see Feasibility Study of Big Horn Westside Irrigation District, Clyde-Criddle-Woodward, Inc., June, 1975.

[2] Westside Irrigation Project - Special Report, U.S. Department of the Interior, Bureau of Reclamation, Upper Missouri Region, September, 1983.

[3] Ibid.

or feed barley, corn for grain or silage, alfalfa, dry beans and oats. In 1980, 79 percent of irrigated land was devoted to sugar beets, barley and alfalfa, 10 percent was corn, and 11 percent dry beans and other minor crops.[4] However, if more irrigation water becomes available other crops may be included in the farmers' cropping patterns. Big Horn and Washakie counties constitute one of the primary cash crop areas of Wyoming.

One factor determining the feasibility of the irrigation project is the expected monetary returns from the additional land brought into irrigated crop production. In estimating the productivity of the project lands it is assumed that only four crops would be grown; alfalfa, barley, corn grain and sugar beets. The yields per acre assumed for these crops are: alfalfa, 4.5 ton, barley, 90 bu., corn grain, 100 bu., and sugar beets, 22 tons.[5] One-third of the project lands is assumed to be brought into production each year for the three years following construction (i.e., 3,009 or 6,906 acres per year depending on project size).[6]

In order to obtain and maintain good crop yields in subsequent years, it is necessary to rotate crops. In a study on the Westside Irrigation Project, Agee (1977) budgeted a crop plan for a 5-year development period.[7] In the first year the land brought into production would be planted in barley. The second year the 3,009 (6,906) acres brought in would be in barley with alfalfa seeded into stubble after barley harvest. For the next three years alfalfa would be grown. A 7-year post development plan was also estimated. In this budget, sugar beets

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[4] Ibid.

[5] Obtained from personal communications with Drs. Douglas E. Agee and James J. Jacobs, Department of Agricultural Economics, University of Wyoming.

[6] Ibid.

[7] Report on the Westside Irrigation Project Water Payment Possibilities Worland-Manderson-Basin Area, Agricultural Extension Service, University of Wyoming, Laramie, November, 1977.

(the main cash crop for the area) would not be planted until the eighth year following completion of the project. The optimal crop mix at the end of the development period is estimated to be 33 percent alfalfa, 20 percent barley, 25 percent corn grain, and 22 percent sugar beets.[8]

The prices assumed for the crops grown are, $59.94/ton for alfalfa, $2.69/bu for barley, $2.74/lb for corn grain, and $42.39/ton for sugar beets.[9] Given the optimal crop mix stated above, projected annual revenue for the 9,026 acre project after full production of the land is underway is $3,755,366 or $416 per acre. A breakdown of the revenue is provided in Table 1. A similar projection could be made for the 20,718 acre project. Net revenues per acre, however, are far less. For a comparable cropping system, Jacobs estimated the annual net return to land and irrigation water for the Westside project to be $29.95 per acre. At a four percent discount rate the 9,026 acre project was estimated to have a direct benefit-cost ratio of 0.22 to 1.00.[10]

Project Costs

The total construction cost of the proposed 9,026 acre irrigation project was estimated to be $10,444,080 in 1980 dollars[11] The annual operation, maintenance and replacement cost was estimated to be $374,246.[12] Construction of the irrigation system is estimated to take two years. The 20,718 acre

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8 Obtained from personal communications with Drs. Douglas E. Agee and James J. Jacobs.

9 Assumed prices are the 1979-81 average annual prices, calculated from the annual prices published in Wyoming Agricultural Statistics.

10 James J. Jacobs, "Development of Water Resources: An Evaluation of the Westside Irrigation Project." Unpublished Paper, February 1984.

11 Westside Irrigation Project - Special Report, U.S. Department of the Interior, Bureau of Reclamation, Upper Missouri Region, September, 1983.

12 Ibid.

Table 1. Projected Revenue from Project Lands - 9,026 Acres

| Crop | Percent of Total Land | Actual Acres | Yield/ Acre | Price | Revenue |
|---|---|---|---|---|---|
| Alfalfa | 33 | 2,979 | 4.5 ton | $59.94 | $ 803,412 |
| Barley | 20 | 1,805 | 90 bu. | 2.69 | 437,039 |
| Corn | 25 | 2,257 | 110 bu. | 2.74 | 680,109 |
| Beets | 22 | 1,986 | 22 ton | 40.32 | 1,834,805 |
| | | | | | $3,755,366 |

project is estimated to have a total construction cost of $14,691,217 in 1980 dollars and is estimated to take three years to construct.[13]

Project Employment

Presently, there are 211 farmers in the Westside area who irrigate a total of 23,500 acres.[14] With the 9,026 acre alternative it is assumed that land brought into production through the project would be added on to existing farms. On average, this would be an additional 43 acres per farm, however, it is unlikely that the land would be distributed so uniformly. Regardless of how it is distributed it is assumed no new farms would be created from the additional acreage.

From an employment standpoint, it is estimated that the additional 9,026 acres would result in seventeen new jobs (i.e., full-time equivalent).[15] Five

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13 Feasibility Study of Big Horn Westside Irrigation District, Clyde-Criddle-Woodward, Inc., June, 1975.

14 Westside Irrigation Project - Special Report, U.S. Department of the Interior, Bureau of Reclamation, Upper Missouri Region, September, 1983.

15 Estimated based upon personal communications with Mr. Jack Kempler and Dr. James J. Jacobs, J. T. Banner & Associates and the University of Wyoming, respectively.

people would be employed to maintain the water delivery system and the other 12 would be employed in agriculture. Also, it is estimated that the construction of the project would involve short-term employment of 126 worker years during the peak year of construction which would be the second year.[16]

The 20,718 acre project would most likely involve the creation of new farms as well as add-on's to existing farms. It is estimated that additional acreage would result in 80 new farm units and therefore, 80 families.[17] Total additional long-term employment stemming from the project is estimated to be 154 man-years (i.e., 7 maintenance worker man-years, 67 migrant farm worker man-years and 80 farm operator man-years) to maintain full irrigated production. The number of workers required to construct the water delivery system is estimated to be 79, 118, and 79 workers respectively, over a three year period.[18]

Middle Fork Dam and Reservoir

The Middle Fork Dam and Reservoir has been proposed for construction by the Power River Reservoir Corporation of Kaycee, Wyoming. The corporation was formed to facilitate the planning of the reservoir and consists of members (landholders) of the Middle Fork Irrigation District. Kaycee is located in Johnson County in northeastern Wyoming. The reservoir would be located about 12 miles west of Kaycee on the middle fork of the Powder River. A map of the project area is provided in Figure 2.

Two uses of the reservoir are being considered. One use of the reservoir

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16 Westside Irrigation Project - Special Report, U.S. Department of the Interior, Bureau of Reclamation, Upper Missouri Region, September, 1983.

17 Personal communication with Dr. James J. Jacobs, Department of Agricultural Economics, University of Wyoming.

18 Personal communications with Mr. Jack Kempler, J.T. Banner & Associates.

would be to provide supplemental water on existing irrigation lands. Water from the reservoir would supplement water presently available from the Sahara Ditch, east of Kaycee. The additional supply of water would provide supplemental water for approximately 5,100 acres of presently irrigated lands. The water necessary to meet the supplemental irrigation is estimated to be about 6,000 acre feet per year which is well within the reservoir's capacity.

The second potential use of the reservoir would be to supply water for a coal gasification plant in addition to water supplied for irrigation purposes. Although no gasification plant currently exists in the vicinity of the project area, due to the slump in energy prices since 1980, it is not unreasonable to consider the existence of one in the future. Expanding the use of the reservoir for industrial purposes would increase the total value of water supplied by the reservoir. Discussions with the coal-energy companies indicated that while they may likely use the water resource in conjunction with development of their coal reserves, they have no firm plans regarding water use.[20] Thus, any consideration of using the Middle Fork Reservoir's supply of water for industrial purposes is purely conjecture. It is estimated that 27,000 acre feet per year, used at the rate of 2,250 acre feet per month, would be available for industrial use.[21] The area of consideration for a coal gasification plant is approximately 20 miles south of Gillette, Wyoming, located in northeastern Wyoming.

The Middle Fork Irrigation District consists of a group of approximately 22 operators whose holdings are located primarily along the Powder River below Kaycee. The river flows due east for 18 to 20 miles below Kaycee and then turns sharply northward. The lands to be irrigated are located along this stretch of

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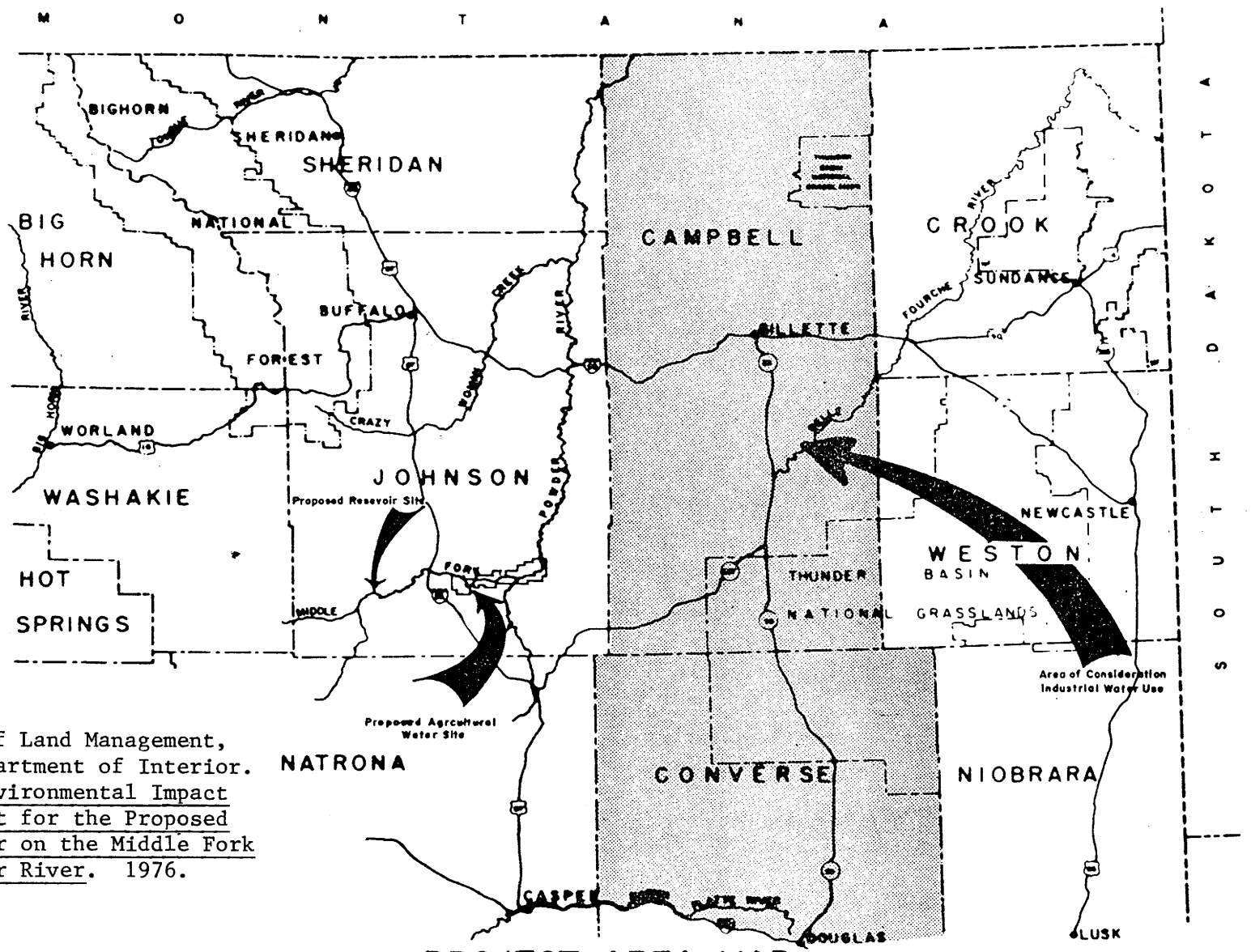
20 Environmental Impact Statement, U. S. Department of Interior, Bureau of Land Management, January, 1976.

21 Ibid.




SOURCE:
Bureau of Land Management, U.S. Department of Interior. Draft Environmental Impact Statement for the Proposed Reservoir on the Middle Fork of Powder River. 1976.

PROJECT AREA MAP
NE WYOMING

Figure 2.

river between Kaycee and the bend.[22]

Crop Production

The principal crops grown in the project area are alfalfa, alfalfa hay mixtures (improved hay), oats (cover crop), and irrigated pasture. The majority of these crops are fed locally to livestock. A typical agricultural operation consists of approximately 340 irrigated acres along with substantial summer range for pasturing livestock.[23] Current yields per acre for crops grown in the project area are assumed to be 3 tons for alfalfa, 2.2 tons for improved hay, 60 bushels for oat cover crop, and 3.5 AUM's for irrigated pasture.[24]

A baseline estimate of gross returns per acre for the typical operator in the project area assuming the above yields is $133.36 (Table 2). This is the gross return per acre prior to implementation of the irrigation project. In contrast, gross return per acre for existing irrigated lands, assuming a full water supply, is estimated to be $193.75 (i.e., $60.39 more per acre). The increased estimate is based on the assumption that yields would increase as a consequence of the supplemental irrigation from the Middle Fork Reservoir. Net revenue per acre is expected to increase by $40.30 with supplemental irrigation.[25]

Coal Gasification

In the coal gasification process there is a relationship between the amount of water used and the amount of synthetic natural gas produced. A plant of

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22 Ibid.

23 Middle Fork Powder Dam and Reservoir Project, Level II, Agricultural Ability to Pay Analysis, Preliminary Report, Western Research Corporation, 1984.

24 Ibid.

25 Ibid.

typical size would be rated at a production of 250 million standard cubic feet per day (MMSCFD). This would require about 8,300 acre feet of water per year to operate.[26] Since it is assumed that the total water available for industrial purposes from the reservoir would be 27,000 acre feet, a 750 MMSCFD gasification plant could be supported or perhaps, two 375 MMSCFD size plants. In this study, the impacts of building and operating one 375 MMSCFD plant with water from the Middle Fork reservoir will be assessed. Approximately 12,500 acre feet of water would be necessary to operate the plant.

Synthetic pipeline gas is the principal product for which the plant is designed, however, there are a number of saleable by-products of the gasification process. These include sulfur, tar, tar oil, phenols and ammonia. The coal required to operate a 375 MMSCFD gasification plant is approximately 13,500,000 tons per year.[27] Coal reserves required for a 375 MMSCFD plant size, assuming a 30-year life for the plant, are estimated to be 405,000,000 tons.[28]

Construction Costs

The total construction cost of the reservoir is estimated to be $10,958,149 in 1980 dollars, with the annual operating and maintenance cost being $159,478.[29] Construction time is estimated to be two years.

Employment

It is estimated that if use of the reservoir is limited to agricultural

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26 Environmental Impact Statement, U. S. Department of Interior, Bureau of Land Management, January, 1976.

27 Ibid.

28 Ibid.

29 Engineering Feasibility Report on the Middle Fork Powder River Dam and Reservoir, J. F. Banner and Assoc., Laramie, WY, 1970. The 1970 costs were inflated to 1980 prices using cost indices from the Engineering News Reporter.

Table 2. Increase in Annual Gross Revenue per Acre from Supplying Supplemental Water.

| | Current Land Use | | | Expected Land Use | | |
|---|---|---|---|---|---|---|
| Crop | Cropping Pattern | Yield/ Acre | Gross Return/ Acre | Cropping Pattern | Yield/ Acre | Gross Return/ Acre |
| Alfalfa [a] | .338 | 3.0 tons | $62.30 | .529 | 4.0 tons | $129.21 |
| Improved [b] Hay | .368 | 2.2 tons | 50.18 | .288 | 2.7 tons | 47.91 |
| Oats [c] | .059 | 70 bu. | 8.19 | - | - | - |
| Oat Cover Crop | .059 | 60 bu. | 7.15 | .094 | 75 bu. | 13.86 |
| Irrigated [d] Pasture | .176 | 3.5 AUM's | 5.54 | .088 | 3.5 AUM's | 2.77 |
| | | | $133.36 | | | $193.75 |
| Revenue Increase | | | | | | $60.39/acre |

Source: Middle Fork Powder Dam and Reservoir Project, Level II, Agricultural Ability to Pay Analysis, Western Research Corporation, 1984.

[a] Based upon alfalfa at $59.94/ton and aftermath grazing at $4.50/acre.

[b] Based upon improved hay at $59.94/ton and aftermath grazing at $4.50/acre.

[c] Based upon oats at $1.75/bu. and 0.65 tons/acre of straw at $25/ton.

[d] Based upon grazing valued at $9 per AUM.

purposes five additional full-time, permanent jobs would be created as a consequence of construction of the dam.[30] Two of these jobs would be devoted to maintenance of the reservoir. The other three people would be employed to accommodate increased crop production. Also, it is estimated that construction of the dam would provide short-term, full-time employment for 115 workers during the first year of construction and 75 workers during the second year.[31]

Expanding the use of the reservoir for industrial purposes would result in a significant increase in employment estimates over those when use of the reservoir is limited to agricultural purposes. A 375 MMSCFD size gasification plant required approximately 1,000 people to operation.[32] Construction of the gasification plant is estimated to take five years.[33] On average, 1,750 people would be employed for construction of the plant.[34] Because the size of the reservoir would be the same whether used for agricultural or industrial purposes (or both) the number of people to construct the reservoir and to maintain it would be the same as stated above.

Conceptual Framework

All impact assessments are implicitly of net impacts, that is, of impacts caused by a proposed action rather than of all change in a project area. To ascertain net impacts, the future with the proposed action must be compared to the future without the proposed action. Impact analysts, therefore initially construct baseline projections for a study area without a proposed project, and

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30 Ibid.

31 Ibid.

32 Environmental Impact Statement, U.S. Department of Interior, Bureau of Land Management, January, 1976.

33 Ibid.

34 Ibid.

then changes in a wide range of socioeconomic dimensions from initial baseline projections are predicated on the expected expenditure and employment levels resulting from a proposed action. The analysis presented here examines the magnitude and distribution of the economic, demographic and public sector impacts associated with four specific water development projects.

Inter-industry Linkages and Secondary Effects

The evidence which has accumulated to date does suggest that water projects provide substantial benefits to local communities. They can be stimuli to the local economy, which contributes to the stabilization or enhancement of local population and public service bases, and enhancement of the local tax base. Construction of a large-scale water project will affect all aspects of an area's economy. In additional to the direct effects of the project on local employment, business activity and income, substantial secondary (indirect and induced) effects are expected to occur in the area. These secondary effects arise from the multiplier process, whereby an initial economic stimulus to the local economy leads to increased sales by local firms which in turn purchase additional inputs from other local firms and households. These secondary effects associated with consumer businesses and input-supply firms result in local economic activity exceeding the initial primary stimulus. Estimating the magnitude of secondary economic activity (i.e., induced employment, business volume and income) resulting from water development projects are central to the evaluation of the total (i.e., primary and secondary) changes in area employment, business volume and income resulting from water development. Secondary employment estimates are important inputs to making realistic projections of population growth and public service needs associated with water development. Estimates of secondary business activity and income assist in forecasting changes in local and state revenues resulting from

development.[35]

A mechanism often utilized in estimating the secondary effects of an initial economic stimulus on an area's employment, business activity and income is the input-output model. The model, with quantitative estimates of the interdependencies of an area's economic sectors as suppliers of inputs and purchasers of products, provides the basis for tracing the multiplier effects of water development in the economy.

Demographic Effects

Large-scale water projects in rural areas impact the demographic structure of local communities. The employment opportunities resulting from a new project may lead to the retention of more young adults and to in-migration. The magnitude of population change, the age-sex composition of the new population and the location of population change within an impacted area have substantial implications for public service requirements and can be expected to be a major determinant of the social and public sector (service and fiscal) effects of a project. The composition of population growth can, for example, significantly affect the demand for public school services.

Fiscal Effects

The purpose of fiscal impact analysis is to project the changes in the costs and revenues of government units which are likely to occur in response to a proposed action. The governmental units of primary interest are the state, counties, cities and school districts which may experience significant changes in service demands or revenues as a result of a project. Important variables affecting fiscal impacts include the nature of the new project (especially the

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35 Larry F. Leistritz and Steven H. Murdock. The Socioeconomic Impact of Resource Development: Methods of Assessment. Boulder, Colorado. Westview Press, 1981.

capital-labor ratio), the number of additional dependents, residential patterns of the work force, incremental costs of the public services required, and tax and revenue transfer institutions.

Methodology of Impact Assessment

The preceding parts of this section are intended to provide a brief overview of the conceptual issues involved in the socioeconomic impact assessment of a water resource development project. Since none of the issues are mutually independent from each other most impact assessments are done with site-specific computerized models that embody inter-related input-output, demographic, residential allocation, service demand and fiscal impact sub-components.[36] Such models, such as the North Dakota Economic-Demographic Assessment Model (NEDAM) and the Texas Assessment Modeling System (TAMS) are expensive in terms of time and money to develop, but are capable of providing timely and readily usable projections of the effects of proposed natural resource developments for state and local decision makers.

All assessment models must be developed for or successfully modified for the unique characteristics (e.g., public revenue and expenditure patterns) of the particular study area in questions. Fortunately the existing computerized socioeconomic impact assessment model NEDAM was recently adapted and expanded for use in six multi-county regions in Wyoming.[37] This model for Wyoming projects business activity and personal income at the regional level and

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36 Larry F. Leistritz, et al. North Dakota Economic-Demographic Assessment Model (NEDAM: Technical Description. Agricultural Economics Report No. 158, North Dakota Agricultural Experiment Station, North Dakota State University, Fargo, ND, September 1982.

37 Randal C. Coon, et al. Expansion and Adaptation of the North Dakota Economic - Demographic Assessment Model (NEDAM) for Wyoming: Technical Description. Agricultural Economics Miscellaneous Report No. 63, North Dakota Agricultural Experiment Station, North Dakota State University, Fargo, ND, May 1983.

estimates employment, population and public sector costs and revenues at the state, county and community levels. It is a model which embodies the best available methodology for assessing the secondary effects associated with alternative scenarios of water development.

Water development may have important implications for the public sectors of communities and counties within a project impacted region. Both directly and indirectly, and in the construction and operation phases, a water development project increases the demand for public services and increases municipal, county and state tax bases. If the capital to labor ratio associated with water development is high or if water is used for heavily taxed industrial purposes, then the net fiscal impacts on local and state government is likely to be positive. In fact, county and state government may find it advantageous to provide financial inducements for the construction of particular projects. Conversely, for projects were fiscal impacts are forecast to be negative, some tax rates may have to be raised at the local and/or state level to maintain previous levels of public services. In this latter case projects would act to drain governmental revenues from the juristictions in which they were located.

## CHAPTER III

## Design of Research

In this study two Westside irrigation projects scenarios and two Middle Fork reservoir project scenarios are examined to estimate the magnitude and distribution of economic, demographic and public sector impacts of these four possible project scenarios. The adapted version of NEDAM, which divides all 23 counties in Wyoming into six multi-county regions, is the impact assessment model used to examine of these scenarios. The counties within its six regions

are identified in Table 3.

Table 3. Counties in Regions 1-6 (Wyoming)

| Region 1 | Region 2 | Region 3 | Region 4 | Region 5 | Region 6 |
|---|---|---|---|---|---|
| Crook | Niobrara | Goshen | Sublette | Fremont | Big Horn |
| Weston | Converse | Platte | Lincoln | Teton | Washakie |
| Campbell | Natrona | Laramie | Sweetwater | | Hot Spring |
| Sheridan | | Albany | Lincoln | | Park |
| Johnson | | Carbon | Uinta | | |

The Wyoming version of NEDAM (WEDAM) is a multiple-module interactive computer model with essentially the same structure and capabilities as NEDAM. The economic, demographic, residential allocation and fiscal impact modules each are adapted for the economic, demographic and fiscal conditions of Wyoming.[40] The WEDAM model first computes regional baseline economic activity without a proposed project and then regional economic activity with the development scenario specified for a particular project.

The economic module of WEDAM is driven by a project specific data file, which contains the following information:

1. Project starting date,
2. Location of Project,
3. Number of years after the start of construction that operation begins,
4. Tons of coal mined per year -- if it is a coal-energy project,
5. Cubic feet of synthetic gas sold per year -- if it is a coal-energy project,
6. Project final demand vectors for the following sectors:

    a) Agriculture
    b) Households,
    c) Retail trade, and

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40 Randal C. Coon, et al. Expansion and Adaptation of the North Dakota Economic - Demographic Assessment Model (NEDAM) for Wyoming: Technical Description. Agricultural Economics Miscellaneous Report No. 63, North Dakota Agricultural Experiment Station, North Dakota State University, Fargo, ND, May 1983.

d) Construction.

7. Direct labor,

a) Construction (temporary workers), and
b) Operation or permanent workers.

Other modules of WEDAM require the following information for their use:

1. Birthrates,
2. Work force participation rates,
3. Family size,
4. Assumed inflation rate, and
5. Tax rates

## CHAPTER IV

## Results of the Westside Analyses

The magnitude and distribution of impacts due to a water development project principally are caused by the economic activity, income and employment it generates. The analyses presented in this chapter examine the expected economic, demographic and public sector impacts associated with the construction, operation and maintenance of two alternative Westside irrigation projects. Though several factors contribute to the economic impacts of water resource development, the principal determinants are the costs and revenues from project construction, operation and maintenance. An overview of these determinants of economic change are provided in Tables 4 and 5 for the Westside 9,026 acre and 20,718 acre scenarios, respectively.

### Regional Economic Impact Projections

The WEDAM model utilizes regional input-output models to estimate the total effects (both primary and secondary) of developing proposed projects. Baseline estimates of business activity, income, employment and other variables for region 6 without either Westside project are presented in subsequent tables, along with regional estimates of project effects. These baseline estimates are based upon the assumption that final demand for the

Table 4. Westside 9,026 Acre Project: Economic Overview

| Year | Construction Costs [a] Contract Construction | Construction Costs [a] Payroll & Salaries | Operation and Maintenance Costs Material & Supplies | Operation and Maintenance Costs Payroll & Salaries | Agricultural Revenue |
|---|---|---|---|---|---|
| | | | (1980 dollars) | | |
| 1986 | | | | | |
| 1987 | $1,779,100 | $1,702,260 | | | |
| 1988 | 3,558,200 | 3,404,520 | | | |
| 1989 | | | $239,146 | $135,100 | $728,399 |
| 1990 | | | 239,146 | 135,100 | 1,456,798 |
| 1991 | | | " | " | 2,268,326 |
| 1992 | | | " | " | 2,874,846 |
| 1993 | | | " | " | 3,315,106 |
| 1994 | | | " | " | 3,755,366 |
| . | | | . | . | . |
| . | | | . | . | . |
| . | | | . | . | . |
| 2005 | | | 239,146 | 135,100 | 3,755,366 |

[a] Construction costs exclude fees for engineering and legal services, interest during construction and allowance for contingencies.

Table 5. Westside 20,718 Acre Project: Economic Overview

| Year | Construction Costs [a] Contract Construction | Construction Costs [a] Payroll & Salaries | Operation and Maintenance Costs Material & Supplies | Operation and Maintenance Costs Payroll & Salaries | Agricultural Revenue |
|---|---|---|---|---|---|
| | | | (1980 dollars) | | |
| 1986 | | | | | |
| 1987 | $2,062,911 | $2,134,580 | | | |
| 1988 | 3,107,876 | 3,188,360 | | | |
| 1989 | 2,062,911 | 2,134,580 | $379,395 | $189,140 | $1,671,943 |
| 1990 | | | 379,395 | 189,140 | 3,343,885 |
| 1991 | | | " | " | 5,206,641 |
| 1992 | | | " | " | 6,598,827 |
| 1993 | | | " | " | 7,609,389 |
| 1994 | | | " | " | 8,619,950 |
| . | | | . | . | . |
| . | | | . | . | . |
| . | | | . | . | . |
| 2005 | | | 379,395 | 189,140 | 8,619,950 |

[a] Construction costs exclude fees for engineering and legal services, interest during construction and allowances for contingencies.

production of each of the region's basic industrial sectors will grow from 1981-2005 at the same average rates as they did from 1960-80. Any assumption regarding expected growth in the demand for a region's basic output will not accurately depict the future, but historic trends do provide the most defensible bases for making baseline projections from which to assess project impacts.

Development of either Westside project would result in only moderate economic growth for the region (Tables 6-10). Even during the first year of construction when economic growth would be greatest; business activity, income and employment growth for the larger project is projected to be 2.2 percent, 3.3 percent and 2.2 percent, respectively. These growth rates would neither create significant in-migration into the region, nor overburden local governments' ability to provide additional services.

Tables 9 and 10 indicate that the economic stimulus provided by either Westside project would lead to substantial employment increases in trade and service sectors of region 6. For example in 1995, the 9,026 acre project would directly employ 12 agricultural workers and 5 project operation and maintenance workers; however, the project would create employment opportunities for an additional 125 people. This means that the employment multiplier for irrigation development is extremely high in this region.

Previous research has shown that annual population growth rates of 2.5 percent or more imposes stresses on a local government's ability to provide needed facilities and services.[41] Residents often feel dissatisfied with

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[41] Kenneth L. Deaver and David L. Brown. Social and Economic Trends in Rural Communities. Economics, Statistics, and Cooperative Service, U.S. Department of Agriculture, The White House Rural Development Background Paper, Washington, D.C., 1979.

public services in communities with rapid growth.[42] Population growth with the larger Westside project is never projected to be more than 1.8 percent (Table 11), a level that could be easily accommodated.

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[42] Steve Murdock and Eldon Schriner. "Community Service Satisfaction and Stages of Community Development: An examination of Evidence from Impacted Communities," Journal of Community Development Society. Vol. 10, Spring 1979.

Table 6. Projected Business Activity for the Westside Scenarios and Projected Increase in Business Activitiy from Addition of the Westside Scenarios, Region 6.

| Year | Westside | Westside Irrig. 9026 | Westside Irrig. 20718 | Projected Increase in Business Activity From Addition of the Westside 9026 | Projected Increase in Business Activity From Addition of the Westside 20718 |
|---|---|---|---|---|---|
| | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 1,645,124 | 1,645,124 | 1,645,124 | 0 | 0 |
| 1982 | 1,649,241 | 1,649,241 | 1,649,241 | 0 | 0 |
| 1983 | 1,481,567 | 1,481,567 | 1,481,567 | 0 | 0 |
| 1984 | 1,514,158 | 1,514,158 | 1,514,158 | 0 | 0 |
| 1985 | 1,539,367 | 1,539,367 | 1,539,367 | 0 | 0 |
| 1986 | 1,562,485 | 1,562,485 | 1,562,485 | 0 | 0 |
| 1987 | 1,586,700 | 1,593,644 | 1,596,368 | 6,944 | 9,668 |
| 1988 | 1,610,200 | 1,623,546 | 1,625,511 | 13,346 | 15,311 |
| 1989 | 1,637,614 | 1,641,460 | 1,652,428 | 3,846 | 14,814 |
| 1990 | 1,664,320 | 1,668,286 | 1,673,007 | 3,966 | 8,687 |
| 1991 | 1,685,941 | 1,690,029 | 1,694,906 | 4,088 | 8,965 |
| 1992 | 1,702,675 | 1,707,403 | 1,713,111 | 4,728 | 10,436 |
| 1993 | 1,719,413 | 1,724,782 | 1,731,320 | 5,369 | 11,907 |
| 1994 | 1,736,146 | 1,742,157 | 1,749,525 | 6,011 | 13,379 |
| 1995 | 1,752,882 | 1,758,893 | 1,766,261 | 6,011 | 13,379 |
| 1996 | 1,769,620 | 1,775,631 | 1,782,999 | 6,011 | 13,379 |
| 1997 | 1,786,353 | 1,792,364 | 1,799,732 | 6,011 | 13,379 |
| 1998 | 1,803,092 | 1,809,103 | 1,816,471 | 6,011 | 13,379 |
| 1999 | 1,819,827 | 1,825,838 | 1,833,206 | 6,011 | 13,379 |
| 2000 | 1,836,560 | 1,842,571 | 1,849,939 | 6,011 | 13,379 |
| 2001 | 1,853,297 | 1,859,308 | 1,866,676 | 6,011 | 13,379 |
| 2002 | 1,870,033 | 1,876,044 | 1,883,412 | 6,011 | 13,379 |
| 2003 | 1,886,767 | 1,892,778 | 1,900,146 | 6,011 | 13,379 |
| 2004 | 1,903,505 | 1,909,516 | 1,916,884 | 6,011 | 13,379 |
| 2005 | 1,920,239 | 1,926,250 | 1,933,618 | 6,011 | 13,379 |

Table 7. Projected Personal Income for the Westside Scenarios and Projected Personal Income from the Addition of the Westside Scenarios.

| Year | Westside | Westside Irrig. 9026 | Westside Irrig. 20718 | Projected Increase in Personal Income From Addition of the Westside 9026 | 20718 |
|---|---|---|---|---|---|
| | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 619,517 | 619,517 | 619,517 | 0 | 0 |
| 1982 | 621,489 | 621,489 | 621,489 | 0 | 0 |
| 1983 | 582,169 | 582,169 | 582,169 | 0 | 0 |
| 1984 | 601,803 | 601,803 | 601,803 | 0 | 0 |
| 1985 | 616,371 | 616,371 | 616,371 | 0 | 0 |
| 1986 | 629,502 | 629,502 | 629,502 | 0 | 0 |
| 1987 | 643,387 | 648,122 | 650,017 | 4,735 | 6,630 |
| 1988 | 656,781 | 665,945 | 667,296 | 9,164 | 10,515 |
| 1989 | 672,865 | 675,359 | 682,903 | 2,494 | 10,038 |
| 1990 | 688,462 | 691,036 | 694,114 | 2,574 | 5,652 |
| 1991 | 700,565 | 703,219 | 706,401 | 2,654 | 5,836 |
| 1992 | 709,313 | 712,391 | 716,123 | 3,078 | 6,810 |
| 1993 | 718,062 | 721,565 | 725,847 | 3,503 | 7,785 |
| 1994 | 726,811 | 730,739 | 735,570 | 3,928 | 8,759 |
| 1995 | 735,559 | 739,487 | 744,318 | 3,928 | 8,759 |
| 1996 | 744,308 | 748,236 | 753,067 | 3,928 | 8,759 |
| 1997 | 753,057 | 756,985 | 761,816 | 3,928 | 8,759 |
| 1998 | 761,806 | 765,734 | 770,565 | 3,928 | 8,759 |
| 1999 | 770,554 | 774,482 | 779,313 | 3,928 | 8,759 |
| 2000 | 779,307 | 783,231 | 788,062 | 3,928 | 8,759 |
| 2001 | 788,052 | 791,980 | 796,811 | 3,928 | 8,759 |
| 2002 | 796,800 | 800,728 | 805,559 | 3,928 | 8,759 |
| 2003 | 805,549 | 809,477 | 814,308 | 3,928 | 8,759 |
| 2004 | 814,298 | 818,226 | 823,057 | 3,928 | 8,759 |
| 2005 | 823,047 | 826,975 | 831,806 | 3,928 | 8,759 |

Table 8. Projected Baseline Employment by Sector, Region 6.[a/]

| Year | Agri-culture | Metal Mining | Coal Mining | Pet. Exp. Ext. | Sector Other Mining | Sector Con-tract Const. | Lumber Prod. | Whsl. Trade /Ag. Proc. | Pet. Ref. | Metal Proc. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1981 | 1508 | 0 | 6 | 821 | 420 | 2286 | 395 | 4129 | 250 | 0 |
| 1982 | 1497 | 0 | 6 | 825 | 421 | 2331 | 396 | 4216 | 247 | 0 |
| 1983 | 1478 | 0 | 6 | 752 | 414 | 2225 | 397 | 4285 | 21 | 0 |
| 1984 | 1468 | 0 | 5 | 755 | 415 | 2268 | 398 | 4372 | 21 | 0 |
| 1985 | 1458 | 0 | 5 | 758 | 416 | 2312 | 399 | 4459 | 21 | 0 |
| 1986 | 1449 | 0 | 5 | 761 | 417 | 2357 | 400 | 4546 | 20 | 0 |
| 1987 | 1440 | 0 | 5 | 764 | 418 | 2402 | 401 | 4633 | 20 | 0 |
| 1988 | 1432 | 0 | 5 | 767 | 419 | 2449 | 402 | 4720 | 20 | 0 |
| 1989 | 1424 | 0 | 5 | 770 | 420 | 2497 | 403 | 4807 | 20 | 0 |
| 1990 | 1416 | 0 | 4 | 774 | 421 | 2546 | 404 | 4894 | 19 | 0 |
| 1991 | 1409 | 0 | 4 | 777 | 422 | 2595 | 405 | 4981 | 19 | 0 |
| 1992 | 1401 | 0 | 4 | 780 | 422 | 2646 | 406 | 5069 | 19 | 0 |
| 1993 | 1395 | 0 | 4 | 783 | 423 | 2699 | 406 | 5156 | 19 | 0 |
| 1994 | 1388 | 0 | 4 | 786 | 424 | 2752 | 407 | 5243 | 19 | 0 |
| 1995 | 1382 | 0 | 4 | 789 | 425 | 2806 | 408 | 5330 | 19 | 0 |
| 1996 | 1376 | 0 | 4 | 792 | 426 | 2862 | 408 | 5417 | 18 | 0 |
| 1997 | 1370 | 0 | 4 | 795 | 426 | 2919 | 409 | 5504 | 18 | 0 |
| 1998 | 1364 | 0 | 4 | 798 | 427 | 2978 | 409 | 5591 | 18 | 0 |
| 1999 | 1359 | 0 | 4 | 801 | 428 | 3038 | 410 | 5678 | 18 | 0 |
| 2000 | 1353 | 0 | 3 | 804 | 428 | 3100 | 410 | 5765 | 18 | 0 |
| 2001 | 1348 | 0 | 3 | 807 | 429 | 3163 | 411 | 5852 | 18 | 0 |
| 2002 | 1343 | 0 | 3 | 810 | 429 | 3227 | 411 | 5939 | 17 | 0 |
| 2003 | 1339 | 0 | 3 | 813 | 430 | 3294 | 412 | 6026 | 17 | 0 |
| 2004 | 1334 | 0 | 3 | 816 | 430 | 3362 | 412 | 6114 | 17 | 0 |
| 2005 | 1329 | 0 | 3 | 819 | 431 | 3431 | 413 | 6201 | 17 | 0 |

[a] The sectors shown are the only sectors that change as addition of projects occur.

Table 8.1. Projected Baseline Employment by Sector, Region 6.

| Trans. | Com. Util. | Thermal Power Gen. | Retail Trade | F.I.R.E. | Bus./ Pers. Serv. | Prof./ Soc. Serv. | Gov. | Project Induced | Total |
|---|---|---|---|---|---|---|---|---|---|
| 561 | 823 | 0 | 4,661 | 983 | 1,738 | 1,458 | 3,997 | 0 | 24,015 |
| 563 | 820 | 0 | 4,683 | 1,001 | 1,761 | 1,482 | 3,969 | 0 | 24,218 |
| 520 | 776 | 0 | 4,566 | 985 | 1,750 | 1,452 | 3,801 | 0 | 23,429 |
| 522 | 774 | 0 | 4,587 | 1,002 | 1,773 | 1,475 | 3,794 | 0 | 23,630 |
| 523 | 771 | 0 | 4,607 | 1,020 | 1,795 | 1,499 | 3,787 | 0 | 23,832 |
| 525 | 768 | 0 | 4,627 | 1,038 | 1,818 | 1,523 | 3,780 | 0 | 24,034 |
| 527 | 766 | 0 | 4,646 | 1,055 | 1,839 | 1,546 | 3,773 | 0 | 24,238 |
| 528 | 763 | 0 | 4,665 | 1,073 | 1,861 | 1,570 | 3,767 | 0 | 24,442 |
| 530 | 761 | 0 | 4,683 | 1,091 | 1,882 | 1,594 | 3,761 | 0 | 24,647 |
| 531 | 759 | 0 | 4,701 | 1,108 | 1,903 | 1,617 | 3,755 | 0 | 24,853 |
| 533 | 756 | 0 | 4,719 | 1,126 | 1,924 | 1,641 | 3,749 | 0 | 25,060 |
| 534 | 754 | 0 | 4,736 | 1,144 | 1,944 | 1,665 | 3,744 | 0 | 25,268 |
| 536 | 752 | 0 | 4,752 | 1,162 | 1,964 | 1,688 | 3,738 | 0 | 25,477 |
| 537 | 750 | 0 | 4,769 | 1,180 | 1,984 | 1,712 | 3,733 | 0 | 25,687 |
| 539 | 748 | 0 | 4,784 | 1,198 | 2,003 | 1,736 | 3,728 | 0 | 25,898 |
| 540 | 746 | 0 | 4,800 | 1,216 | 2,023 | 1,759 | 3,723 | 0 | 26,110 |
| 542 | 744 | 0 | 4,815 | 1,234 | 2,042 | 1,783 | 3,718 | 0 | 26,323 |
| 543 | 743 | 0 | 4,830 | 1,253 | 2,061 | 1,807 | 3,714 | 0 | 26,538 |
| 545 | 741 | 0 | 4,845 | 1,271 | 2,079 | 1,830 | 3,709 | 0 | 26,754 |
| 546 | 739 | 0 | 4,859 | 1,289 | 2,097 | 1,854 | 3,705 | 0 | 26,971 |
| 547 | 737 | 0 | 4,873 | 1,307 | 2,115 | 1,878 | 3,701 | 0 | 27,189 |
| 549 | 736 | 0 | 4,887 | 1,326 | 2,133 | 1,901 | 3,696 | 0 | 27,409 |
| 550 | 734 | 0 | 4,900 | 1,344 | 2,151 | 1,925 | 3,692 | 0 | 27,631 |
| 551 | 733 | 0 | 4,913 | 1,363 | 2,168 | 1,949 | 3,688 | 0 | 27,853 |
| 553 | 731 | 0 | 4,926 | 1,381 | 2,186 | 1,972 | 3,684 | 0 | 28,078 |

Table 9. Change in Projected Employment by Sector from Addition of the Westside 9,026 Scenario, Region 6.

| | Agricul-ture | Metal Mining | Coal Mining | Pet. Exp. Ext. | Other Mining | Contract Const-ruction | Lumber Prod. | Whsl. Trade /Ag. Proc. | Pet. Ref. | Metal Proc. | Trans. | Com. Util. | Thermal Power Gen. | Retail Trade | F.I. R.E. | Bus. /Pers. Serv. | Prof. /Soc. Serv. | Gov. | Project Induced | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 2 | 52 | 0 | 7 | 0 | 0 | 1 | 4 | 0 | 34 | 8 | 9 | 13 | 29 | 72 | 231 |
| 1988 | 0 | 0 | 0 | 0 | 4 | 105 | 0 | 14 | 0 | 0 | 3 | 9 | 0 | 63 | 16 | 16 | 24 | 54 | 139 | 447 |
| 1989 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 12 | 0 | 0 | 1 | 3 | 0 | 25 | 5 | 6 | 7 | 18 | 17 | 100 |
| 1990 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 12 | 0 | 0 | 1 | 2 | 0 | 26 | 6 | 6 | 7 | 18 | 17 | 102 |
| 1991 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 13 | 0 | 0 | 1 | 3 | 0 | 25 | 6 | 6 | 7 | 19 | 17 | 104 |
| 1992 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 14 | 0 | 0 | 2 | 3 | 0 | 29 | 7 | 8 | 8 | 21 | 17 | 117 |
| 1993 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 16 | 0 | 0 | 1 | 4 | 0 | 33 | 8 | 9 | 10 | 24 | 17 | 130 |
| 1994 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 18 | 0 | 0 | 2 | 4 | 0 | 36 | 9 | 10 | 11 | 26 | 17 | 143 |
| 1995 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 18 | 0 | 0 | 2 | 4 | 0 | 36 | 10 | 10 | 10 | 26 | 17 | 142 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 19 | 0 | 0 | 2 | 4 | 0 | 36 | 10 | 9 | 11 | 25 | 17 | 141 |
| 1997 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 19 | 0 | 0 | 1 | 4 | 0 | 45 | 10 | 9 | 11 | 25 | 17 | 141 |
| 1998 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 19 | 0 | 0 | 2 | 3 | 0 | 35 | 9 | 9 | 10 | 24 | 17 | 140 |
| 1999 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 19 | 0 | 0 | 1 | 3 | 0 | 34 | 9 | 10 | 11 | 24 | 17 | 139 |
| 2000 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 19 | 0 | 0 | 2 | 3 | 0 | 34 | 10 | 10 | 11 | 24 | 17 | 138 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 19 | 0 | 0 | 2 | 4 | 0 | 34 | 10 | 10 | 10 | 23 | 17 | 138 |
| 2002 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 19 | 0 | 0 | 1 | 3 | 0 | 33 | 9 | 10 | 11 | 24 | 17 | 137 |
| 2003 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 19 | 0 | 0 | 2 | 3 | 0 | 33 | 10 | 9 | 11 | 23 | 17 | 136 |
| 2004 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 18 | 0 | 0 | 2 | 3 | 0 | 33 | 9 | 10 | 10 | 23 | 17 | 136 |
| 2005 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 18 | 0 | 0 | 1 | 3 | 0 | 32 | 10 | 9 | 11 | 23 | 17 | 135 |

Table 10. Change in Projected Employment by Sector from Addition of the Westside 20,718 Scenario, Region 6.

| | Agricul-ture | Metal Mining | Coal Mining | Pet. Exp. Ext. | Other Mining | Contract Const-ruction | Lumber Prod. | Whsl. Trade /Ag. Proc. | Pet. Ref. | Metal Proc. | Trans. | Com. Util. | Thermal Power Gen. | Retail Trade | F.I. R.E. | Bus. /Pers. Serv. | Prof. /Soc. Serv. | Gov. | Project Induced | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 3 | 63 | 0 | 13 | 0 | 0 | 2 | 8 | 0 | 51 | 12 | 13 | 18 | 41 | 113 | 333 |
| 1988 | 0 | 0 | 0 | 0 | 4 | 96 | 0 | 23 | 0 | 0 | 4 | 11 | 0 | 79 | 20 | 20 | 18 | 65 | 178 | 526 |
| 1989 | 0 | 0 | 0 | 0 | 3 | 71 | 0 | 30 | 0 | 0 | 4 | 10 | 0 | 81 | 20 | 21 | 27 | 64 | 166 | 498 |
| 1990 | 0 | 0 | 0 | 0 | 1 | 11 | 0 | 27 | 0 | 0 | 3 | 5 | 0 | 55 | 14 | 14 | 16 | 40 | 87 | 274 |
| 1991 | 0 | 0 | 0 | 0 | 1 | 13 | 0 | 28 | 0 | 0 | 2 | 6 | 0 | 56 | 14 | 15 | 16 | 41 | 87 | 278 |
| 1992 | 0 | 0 | 0 | 0 | 2 | 15 | 0 | 32 | 0 | 0 | 3 | 7 | 0 | 64 | 16 | 17 | 18 | 47 | 109 | 331 |
| 1993 | 0 | 0 | 0 | 0 | 2 | 16 | 0 | 37 | 0 | 0 | 3 | 8 | 0 | 73 | 19 | 20 | 22 | 53 | 131 | 383 |
| 1994 | 0 | 0 | 0 | 0 | 2 | 19 | 0 | 42 | 0 | 0 | 4 | 9 | 0 | 80 | 21 | 22 | 24 | 59 | 154 | 435 |
| 1995 | 0 | 0 | 0 | 0 | 1 | 20 | 0 | 42 | 0 | 0 | 4 | 8 | 0 | 80 | 21 | 22 | 24 | 58 | 154 | 434 |
| 1996 | 0 | 0 | 0 | 0 | 1 | 20 | 0 | 42 | 0 | 0 | 4 | 8 | 0 | 78 | 21 | 22 | 24 | 57 | 154 | 432 |
| 1997 | 0 | 0 | 0 | 0 | 2 | 20 | 0 | 42 | 0 | 0 | 3 | 8 | 0 | 78 | 22 | 21 | 24 | 56 | 154 | 431 |
| 1998 | 0 | 0 | 0 | 0 | 1 | 20 | 0 | 43 | 0 | 0 | 4 | 7 | 0 | 77 | 21 | 21 | 24 | 55 | 154 | 428 |
| 1999 | 0 | 0 | 0 | 0 | 1 | 20 | 0 | 43 | 0 | 0 | 3 | 8 | 0 | 76 | 21 | 22 | 24 | 55 | 154 | 427 |
| 2000 | 0 | 0 | 0 | 0 | 2 | 20 | 0 | 43 | 0 | 0 | 4 | 8 | 0 | 75 | 21 | 22 | 24 | 54 | 154 | 425 |
| 2001 | 0 | 0 | 0 | 0 | 1 | 20 | 0 | 43 | 0 | 0 | 4 | 8 | 0 | 74 | 22 | 22 | 24 | 53 | 154 | 424 |
| 2002 | 0 | 0 | 0 | 0 | 2 | 21 | 0 | 43 | 0 | 0 | 3 | 7 | 0 | 73 | 21 | 21 | 24 | 53 | 154 | 422 |
| 2003 | 0 | 0 | 0 | 0 | 1 | 21 | 0 | 43 | 0 | 0 | 4 | 8 | 0 | 73 | 22 | 21 | 24 | 52 | 154 | 420 |
| 2004 | 0 | 0 | 0 | 0 | 2 | 21 | 0 | 42 | 0 | 0 | 4 | 7 | 0 | 72 | 21 | 21 | 24 | 51 | 154 | 420 |
| 2005 | 0 | 0 | 0 | 0 | 1 | 22 | 0 | 42 | 0 | 0 | 3 | 7 | 0 | 71 | 22 | 20 | 24 | 51 | 154 | 418 |

Table 11. Projected Population for the Westside Scenarios, Region 6.

| | Westside (No Projects) | | | Westside 9026 | | | Westside 20718 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Population | Change | Percent Change | Population | Change | Percent Change | Population | Change | Percent Change |
| 1980 | 48,741 | | | 48,741 | | | 48,741 | | |
| 1981 | 49,160 | 419 | 1 | 49,160 | 419 | 1 | 49,160 | 419 | 1 |
| 1982 | 49,617 | 457 | 1 | 49,617 | 457 | 1 | 49,617 | 457 | 1 |
| 1983 | 49,197 | -420 | -1 | 49,197 | -420 | -1 | 49,197 | -420 | -1 |
| 1984 | 49,641 | 444 | 1 | 49,641 | 444 | 1 | 49,641 | 444 | 1 |
| 1985 | 50,132 | 491 | 1 | 50,132 | 491 | 1 | 50,132 | 491 | 1 |
| 1986 | 50,656 | 523 | 1 | 50,656 | 523 | 1 | 50,656 | 523 | 1 |
| 1987 | 51,154 | 498 | 1 | 51,377 | 721 | 1 | 51,550 | 894 | 2 |
| 1988 | 51,658 | 504 | 1 | 51,957 | 580 | 1 | 52,237 | 687 | 1 |
| 1989 | 52,153 | 495 | 1 | 52,332 | 375 | 1 | 52,770 | 532 | 1 |
| 1990 | 52,628 | 475 | 1 | 52,799 | 467 | 1 | 53,067 | 298 | 1 |
| 1991 | 53,156 | 528 | 1 | 53,328 | 529 | 1 | 53,576 | 509 | 1 |
| 1992 | 53,786 | 630 | 1 | 53,973 | 645 | 1 | 54,248 | 672 | 1 |
| 1993 | 54,466 | 680 | 1 | 54,659 | 686 | 1 | 54,969 | 721 | 1 |
| 1994 | 55,114 | 648 | 1 | 55,326 | 668 | 1 | 55,660 | 691 | 1 |
| 1995 | 55,616 | 501 | 1 | 55,844 | 518 | 1 | 56,208 | 548 | 1 |
| 1996 | 56,184 | 569 | 1 | 56,410 | 566 | 1 | 56,795 | 586 | 1 |
| 1997 | 56,539 | 355 | 1 | 56,794 | 383 | 1 | 57,170 | 375 | 1 |
| 1998 | 56,786 | 247 | 1 | 57,041 | 248 | 0 | 57,498 | 329 | 1 |
| 1999 | 57,118 | 332 | 1 | 57,371 | 329 | 1 | 57,871 | 372 | 1 |
| 2000 | 57,317 | 199 | 0 | 57,568 | 198 | 0 | 58,114 | 243 | 0 |
| 2001 | 57,677 | 360 | 1 | 57,924 | 356 | 1 | 58,467 | 353 | 1 |
| 2002 | 58,007 | 330 | 1 | 58,252 | 329 | 1 | 58,785 | 318 | 1 |
| 2003 | 58,404 | 397 | 1 | 58,646 | 394 | 1 | 59,183 | 399 | 1 |
| 2004 | 58,809 | 405 | 1 | 59,049 | 403 | 1 | 59,581 | 398 | 1 |
| 2005 | 59,014 | 205 | 0 | 59,251 | 202 | 0 | 59,779 | 198 | 0 |

Public Sector Effects

Development of either Westside project would create, both directly and indirectly, a heightened demand for public services as well as provide a base for generating additional public revenue. The economic and population growth associated with water development generate demand for a variety of public services such as education, law enforcement, road construction, recreation and social welfare. Tables 12-14 provide projections of the number of primary and secondary students that would be within region 6 without either project and the increase in students that would result from the development of either project.

Concomitantly, the economic and demographic changes expand such sources of revenue as property taxes, user fees, sales taxes, and intergovernmental grants and transfer payments to finance required services such as education. The Wyoming School Foundation program, for example, provides transfer payments to support public school systems.

People may hold the hypothesis that irrigation projects are financially beneficial to state government because such projects increase the state's revenue base. While it is true that revenues increase, irrigation projects also induce additional state expenditures as well. The key issue then is whether the increases in state revenue exceed the increases in state costs.

Tables 15-17 and 18-20 provide projections of the increases in state revenue and costs, and net fiscal balance associated with the Westside 9,026 acre and 20,718 acre projects, respectively. Neither project is projected to provide a positive net revenue to the state treasury. Wyoming state government heavily depends upon mineral royalties and severance payments for state revenue; therefore, it should not be a surprise that some irrigation projects would have a negative fiscal impact on state government in Wyoming.

Local governments in Wyoming use property and sales taxes to generate a

substantial portion of their revenue. Both Westside projects are projected to increase the net revenues of local governments within region 6 (Tables 21 and 22). Effected municipalities would experience small fiscal deficits from the projects, while counties would experience small fiscal surpluses which more than offset the municipal deficits. Results of the fiscal impact assessment indicate that public sector, overall would not benefit from either proposed Westside project. Given our current tax system, the secondary fiscal costs outweigh the secondary fiscal benefits of these projects.

Table 12. Projected Baseline Number of Students by County, Region 6.

| | Big Horn | | | Hot Springs | | | Park | | | Washakie | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total |
| 1981 | 1,255 | 1,239 | 2,494 | 502 | 532 | 1,034 | 2,065 | 2,308 | 4,373 | 962 | 1,034 | 1,996 |
| 1982 | 1,250 | 1,276 | 2,526 | 518 | 521 | 1,039 | 2,049 | 2,252 | 4,301 | 965 | 1,052 | 2,017 |
| 1983 | 1,231 | 1,240 | 2,471 | 510 | 495 | 1,005 | 2,024 | 2,164 | 4,188 | 974 | 1,026 | 2,000 |
| 1984 | 1,228 | 1,219 | 2,447 | 507 | 491 | 998 | 2,022 | 2,126 | 4,148 | 973 | 994 | 1,967 |
| 1985 | 1,433 | 1,203 | 2,636 | 587 | 468 | 1,055 | 2,326 | 2,079 | 4,405 | 1,159 | 931 | 2,090 |
| 1986 | 1,473 | 1,189 | 2,662 | 600 | 478 | 1,078 | 2,350 | 2,033 | 4,383 | 1,188 | 930 | 2,118 |
| 1987 | 1,504 | 1,189 | 2,693 | 613 | 492 | 1,105 | 2,366 | 2,027 | 4,393 | 1,210 | 936 | 2,146 |
| 1988 | 1,530 | 1,205 | 2,735 | 628 | 505 | 1,133 | 2,408 | 2,044 | 4,452 | 1,245 | 950 | 2,195 |
| 1989 | 1,587 | 1,206 | 2,793 | 644 | 505 | 1,149 | 2,455 | 2,042 | 4,497 | 1,285 | 954 | 2,239 |
| 1990 | 1,528 | 1,356 | 2,884 | 630 | 556 | 1,186 | 2,368 | 2,259 | 4,627 | 1,256 | 1,083 | 2,339 |
| 1991 | 1,569 | 1,382 | 2,951 | 640 | 567 | 1,207 | 2,436 | 2,261 | 4,697 | 1,282 | 1,104 | 2,386 |
| 1992 | 1,608 | 1,400 | 3,008 | 646 | 581 | 1,227 | 2,489 | 2,280 | 4,769 | 1,303 | 1,124 | 2,427 |
| 1993 | 1,636 | 1,423 | 3,059 | 651 | 597 | 1,248 | 2,553 | 2,323 | 4,876 | 1,330 | 1,154 | 2,484 |
| 1994 | 1,679 | 1,464 | 3,143 | 659 | 606 | 1,265 | 2,608 | 2,397 | 4,987 | 1,357 | 1,183 | 2,540 |
| 1995 | 1,607 | 1,488 | 3,095 | 626 | 630 | 1,256 | 2,506 | 2,444 | 4,950 | 1,293 | 1,233 | 2,526 |
| 1996 | 1,631 | 1,528 | 3,159 | 627 | 641 | 1,268 | 2,545 | 2,524 | 5,069 | 1,297 | 1,263 | 2,560 |
| 1997 | 1,645 | 1,556 | 3,201 | 626 | 646 | 1,272 | 2,566 | 2,565 | 5,131 | 1,301 | 1,279 | 2,580 |
| 1998 | 1,653 | 1,565 | 3,218 | 625 | 652 | 1,277 | 2,576 | 2,617 | 5,193 | 1,299 | 1,298 | 2,597 |
| 1999 | 1,659 | 1,601 | 3,260 | 622 | 662 | 1,284 | 2,580 | 2,661 | 5,241 | 1,303 | 1,328 | 2,631 |
| 2000 | 1,655 | 1,480 | 3,135 | 614 | 608 | 1,222 | 2,580 | 2,486 | 5,066 | 1,301 | 1,229 | 2,530 |
| 2001 | 1,659 | 1,494 | 3,153 | 611 | 606 | 1,217 | 2,573 | 2,520 | 5,093 | 1,305 | 1,230 | 2,535 |
| 2002 | 1,659 | 1,505 | 3,164 | 609 | 602 | 1,211 | 2,564 | 2,542 | 5,106 | 1,308 | 1,232 | 2,540 |
| 2003 | 1,659 | 1,514 | 3,173 | 608 | 597 | 1,205 | 2,561 | 2,561 | 5,122 | 1,318 | 1,236 | 2,554 |
| 2004 | 1,662 | 1,518 | 3,180 | 609 | 591 | 1,200 | 2,557 | 2,575 | 5,132 | 1,329 | 1,237 | 2,566 |
| 2005 | 1,665 | 1,516 | 3,181 | 612 | 582 | 1,194 | 2,561 | 2,579 | 5,140 | 1,350 | 1,230 | 2,580 |

Table 13. Projected Increase in Students by County, Region 6, from Addition of the Westside 9,026 Scenario.

| | Big Horn | | | Hot Springs | | | Park | | | Washakie | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 6 | 5 | 11 | 2 | 2 | 4 | 1 | 1 | 2 | 22 | 20 | 42 |
| 1988 | 8 | 7 | 15 | 3 | 3 | 6 | 1 | 1 | 2 | 28 | 25 | 53 |
| 1989 | 5 | 4 | 9 | 2 | 1 | 3 | 0 | 0 | 0 | 20 | 16 | 36 |
| 1990 | 5 | 4 | 9 | 2 | 1 | 3 | 0 | 0 | 0 | 20 | 16 | 36 |
| 1991 | 5 | 4 | 9 | 2 | 1 | 3 | 0 | 0 | 0 | 21 | 16 | 37 |
| 1992 | 6 | 4 | 10 | 2 | 2 | 4 | 0 | 0 | 0 | 23 | 17 | 40 |
| 1993 | 4 | 3 | 7 | 2 | 2 | 4 | 0 | 0 | 0 | 25 | 19 | 44 |
| 1994 | 5 | 4 | 9 | 2 | 2 | 4 | 0 | 0 | 0 | 27 | 21 | 48 |
| 1995 | 4 | 3 | 7 | 2 | 2 | 4 | 0 | 0 | 0 | 27 | 23 | 50 |
| 1996 | 3 | 2 | 5 | 2 | 2 | 4 | 0 | 0 | 0 | 27 | 24 | 51 |
| 1997 | 2 | 2 | 4 | 2 | 2 | 4 | 0 | 0 | 0 | 27 | 24 | 51 |
| 1998 | 2 | 2 | 4 | 2 | 2 | 4 | 0 | 0 | 0 | 26 | 24 | 50 |
| 1999 | 2 | 1 | 3 | 2 | 2 | 4 | 0 | 0 | 0 | 25 | 24 | 49 |
| 2000 | 1 | 1 | 2 | 2 | 2 | 4 | 0 | 0 | 0 | 24 | 24 | 48 |
| 2001 | 1 | 1 | 2 | 2 | 2 | 4 | 0 | 0 | 0 | 23 | 23 | 46 |
| 2002 | 1 | 1 | 2 | 2 | 2 | 4 | 0 | 0 | 0 | 22 | 23 | 45 |
| 2003 | 1 | 1 | 2 | 2 | 2 | 4 | 0 | 0 | 0 | 22 | 22 | 44 |
| 2004 | 1 | 1 | 2 | 2 | 2 | 4 | 0 | 0 | 0 | 21 | 21 | 42 |
| 2005 | 1 | 1 | 2 | 1 | 2 | 3 | 0 | 0 | 0 | 21 | 20 | 41 |

Table 14. Projected Increase in Students by County, Region 6, from Addition of Westside 20,718 Scenario.

| | Big Horn | | | Hot Springs | | | Park | | | Washakie | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 11 | 10 | 21 | 4 | 3 | 7 | 1 | 1 | 2 | 38 | 35 | 73 |
| 1988 | 16 | 14 | 30 | 6 | 5 | 11 | 1 | 1 | 2 | 58 | 51 | 109 |
| 1989 | 17 | 14 | 31 | 6 | 5 | 11 | 1 | 1 | 2 | 65 | 54 | 119 |
| 1990 | 13 | 10 | 23 | 5 | 4 | 9 | 1 | 1 | 2 | 50 | 39 | 89 |
| 1991 | 13 | 9 | 22 | 4 | 3 | 7 | 1 | 1 | 2 | 51 | 38 | 89 |
| 1992 | 15 | 11 | 26 | 5 | 4 | 9 | 1 | 1 | 2 | 56 | 41 | 97 |
| 1993 | 13 | 10 | 23 | 5 | 4 | 9 | 1 | 1 | 2 | 63 | 47 | 110 |
| 1994 | 12 | 9 | 21 | 5 | 4 | 9 | 1 | 1 | 2 | 69 | 54 | 123 |
| 1995 | 12 | 10 | 22 | 5 | 5 | 10 | 1 | 1 | 2 | 70 | 57 | 127 |
| 1996 | 12 | 10 | 22 | 5 | 5 | 10 | 1 | 1 | 2 | 71 | 60 | 131 |
| 1997 | 8 | 7 | 15 | 5 | 5 | 10 | 1 | 1 | 2 | 70 | 60 | 130 |
| 1998 | 7 | 6 | 13 | 5 | 5 | 10 | 1 | 1 | 2 | 68 | 61 | 129 |
| 1999 | 7 | 6 | 13 | 5 | 5 | 10 | 1 | 1 | 2 | 66 | 60 | 126 |
| 2000 | 6 | 6 | 12 | 4 | 4 | 8 | 1 | 1 | 2 | 63 | 60 | 123 |
| 2001 | 6 | 5 | 11 | 4 | 4 | 8 | 1 | 1 | 2 | 60 | 60 | 120 |
| 2002 | 4 | 4 | 8 | 4 | 4 | 8 | 1 | 1 | 2 | 58 | 59 | 117 |
| 2003 | 5 | 5 | 10 | 4 | 4 | 8 | 1 | 1 | 2 | 57 | 58 | 115 |
| 2004 | 5 | 5 | 10 | 4 | 4 | 8 | 1 | 1 | 2 | 55 | 56 | 111 |
| 2005 | 4 | 4 | 8 | 4 | 4 | 8 | 1 | 1 | 2 | 54 | 53 | 107 |

Table 15. Projected Increase in State Revenues from Addition of the Westside 9,026 Scenario, Region 6.

| | Sales and Use Tax | Highway Tax | Cig. - TAB Liq. - Beer | Special Districts Fund | Total Increase in Revenue |
|---|---|---|---|---|---|
| | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 119 | 32 | 6 | 1 | 158 |
| 1988 | 222 | 43 | 8 | 1 | 274 |
| 1989 | 89 | 26 | 5 | 1 | 121 |
| 1990 | 92 | 25 | 4 | 1 | 122 |
| 1991 | 95 | 25 | 4 | 1 | 125 |
| 1992 | 109 | 27 | 5 | 1 | 142 |
| 1993 | 123 | 28 | 5 | 1 | 157 |
| 1994 | 138 | 30 | 5 | 1 | 174 |
| 1995 | 138 | 30 | 5 | 1 | 174 |
| 1996 | 138 | 30 | 5 | 1 | 174 |
| 1997 | 138 | 30 | 5 | 1 | 174 |
| 1998 | 138 | 30 | 5 | 1 | 174 |
| 1999 | 138 | 29 | 5 | 1 | 172 |
| 2000 | 138 | 28 | 5 | 1 | 172 |
| 2001 | 138 | 28 | 5 | 1 | 172 |
| 2002 | 138 | 28 | 5 | 1 | 172 |
| 2003 | 138 | 27 | 5 | 1 | 171 |
| 2004 | 138 | 27 | 5 | 1 | 171 |
| 2005 | 138 | 27 | 5 | 1 | 171 |

Table 16. Projected Increase in State Expenditures from Addition of the Westside 9,026 Scenario, Region 6.

| | Educational Transfers ($000) | Sales/Use Tax Transfers ($000) | Highway Fund ($000) | Cigarette and Tobacco ($000) | Highway Operating ($000) | General Government Functions ($000) | Highway Construction ($000) | Total Increase in Expenditures ($000) |
|---|---|---|---|---|---|---|---|---|
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 79 | 39 | 5 | 3 | 72 | 107 | 5 | 310 |
| 1988 | 111 | 72 | 7 | 3 | 94 | 141 | 7 | 435 |
| 1989 | 68 | 33 | 4 | 2 | 54 | 80 | 9 | 250 |
| 1990 | 68 | 34 | 3 | 2 | 49 | 74 | 9 | 239 |
| 1991 | 70 | 36 | 3 | 2 | 48 | 72 | 9 | 240 |
| 1992 | 78 | 41 | 4 | 2 | 52 | 77 | 9 | 263 |
| 1993 | 78 | 46 | 4 | 2 | 52 | 78 | 9 | 269 |
| 1994 | 84 | 52 | 4 | 2 | 57 | 85 | 9 | 293 |
| 1995 | 88 | 52 | 4 | 2 | 56 | 82 | 9 | 293 |
| 1996 | 86 | 52 | 4 | 2 | 53 | 79 | 9 | 285 |
| 1997 | 88 | 52 | 4 | 2 | 51 | 76 | 9 | 282 |
| 1998 | 89 | 52 | 3 | 2 | 49 | 72 | 9 | 276 |
| 1999 | 83 | 52 | 3 | 2 | 45 | 67 | 9 | 261 |
| 2000 | 80 | 52 | 3 | 2 | 44 | 65 | 9 | 255 |
| 2001 | 78 | 52 | 3 | 2 | 43 | 62 | 9 | 249 |
| 2002 | 75 | 52 | 3 | 2 | 40 | 59 | 9 | 240 |
| 2003 | 71 | 52 | 3 | 1 | 38 | 56 | 9 | 230 |
| 2004 | 69 | 52 | 2 | 1 | 36 | 53 | 9 | 222 |
| 2005 | 66 | 52 | 2 | 1 | 34 | 50 | 9 | 214 |

Table 17. Projected Net Increase or Decrease in State Revenues from Addition of the Westside 9,026 Scenario, Region 6.

| | Total Increase in Revenue ($000) | Total Increase in Expenses ($000) | Net Increase or Decrease ($000) |
|---|---|---|---|
| 1981 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 |
| 1987 | 158 | 310 | -152 |
| 1988 | 274 | 435 | -161 |
| 1989 | 121 | 250 | -129 |
| 1990 | 122 | 239 | -117 |
| 1991 | 125 | 240 | -115 |
| 1992 | 142 | 263 | -121 |
| 1993 | 157 | 269 | -112 |
| 1994 | 174 | 293 | -119 |
| 1995 | 174 | 293 | -119 |
| 1996 | 174 | 285 | -111 |
| 1997 | 174 | 282 | -108 |
| 1998 | 173 | 276 | -103 |
| 1999 | 172 | 261 | -89 |
| 2000 | 172 | 255 | -83 |
| 2001 | 172 | 249 | -77 |
| 2002 | 171 | 240 | -69 |
| 2003 | 171 | 230 | -59 |
| 2004 | 171 | 222 | -51 |
| 2005 | 171 | 214 | -43 |

Table 18. Projected Increase in State Revenues from Addition of the Westside 20,718 Scenario, Region 6.

| | Sales and Use Tax | Highway Tax | Cig. - TAB Liq. - Beer | Special Districts Fund | Total Increase in Revenue |
|---|---|---|---|---|---|
| | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 176 | 56 | 10 | 2 | 244 |
| 1988 | 279 | 82 | 15 | 3 | 379 |
| 1989 | 291 | 87 | 16 | 3 | 397 |
| 1990 | 200 | 62 | 11 | 3 | 276 |
| 1991 | 206 | 59 | 11 | 3 | 279 |
| 1992 | 239 | 65 | 12 | 3 | 319 |
| 1993 | 272 | 71 | 13 | 3 | 359 |
| 1994 | 305 | 77 | 14 | 3 | 399 |
| 1995 | 305 | 79 | 14 | 4 | 402 |
| 1996 | 305 | 80 | 14 | 4 | 403 |
| 1997 | 305 | 77 | 14 | 4 | 400 |
| 1998 | 305 | 76 | 14 | 4 | 399 |
| 1999 | 305 | 75 | 13 | 4 | 397 |
| 2000 | 305 | 73 | 13 | 4 | 395 |
| 2001 | 305 | 72 | 13 | 4 | 394 |
| 2002 | 305 | 70 | 13 | 4 | 392 |
| 2003 | 305 | 71 | 13 | 4 | 393 |
| 2004 | 305 | 70 | 13 | 4 | 392 |
| 2005 | 305 | 70 | 13 | 4 | 392 |

Table 19. Projected Increase in State Expenditures from Addition of the Westside 20,718 Scenario, Region 6.

| | Educational Transfers ($000) | Sales & Use Tax Transfers ($000) | Highway Fund ($000) | Cigarette and Tobacco ($000) | Highway Operating ($000) | General Government Functions ($000) | Highway Construction ($000) | Total Increase in Expenditures ($000) |
|---|---|---|---|---|---|---|---|---|
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 141 | 57 | 9 | 4 | 127 | 189 | 19 | 546 |
| 1988 | 205 | 90 | 13 | 6 | 182 | 272 | 33 | 801 |
| 1989 | 226 | 94 | 13 | 7 | 190 | 283 | 46 | 859 |
| 1990 | 168 | 75 | 9 | 5 | 128 | 191 | 46 | 622 |
| 1991 | 168 | 77 | 8 | 4 | 118 | 176 | 46 | 597 |
| 1992 | 184 | 90 | 9 | 5 | 128 | 191 | 55 | 662 |
| 1993 | 203 | 102 | 10 | 5 | 137 | 204 | 65 | 726 |
| 1994 | 222 | 114 | 10 | 5 | 147 | 219 | 75 | 792 |
| 1995 | 231 | 114 | 10 | 5 | 147 | 218 | 75 | 800 |
| 1996 | 233 | 114 | 10 | 5 | 146 | 216 | 75 | 799 |
| 1997 | 224 | 114 | 9 | 5 | 135 | 200 | 75 | 762 |
| 1998 | 222 | 114 | 9 | 5 | 127 | 187 | 75 | 739 |
| 1999 | 215 | 114 | 8 | 4 | 121 | 180 | 75 | 717 |
| 2000 | 211 | 114 | 8 | 4 | 114 | 168 | 75 | 694 |
| 2001 | 202 | 114 | 8 | 4 | 110 | 163 | 75 | 676 |
| 2002 | 200 | 114 | 7 | 4 | 104 | 154 | 75 | 658 |
| 2003 | 193 | 114 | 7 | 4 | 103 | 153 | 75 | 649 |
| 2004 | 191 | 114 | 7 | 4 | 97 | 144 | 75 | 632 |
| 2005 | 184 | 114 | 7 | 4 | 90 | 134 | 75 | 608 |

Table 20. Projected Net Increase or Decrease in State Revenues from Addition of the Westside 20,718 Scenario, Region 6.

| | Total Increase in Revenue ($000) | Total Increase in Expenses ($000) | Net Increase or Decrease ($000) |
|---|---|---|---|
| 1981 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 |
| 1987 | 244 | 546 | -302 |
| 1988 | 379 | 801 | -422 |
| 1989 | 397 | 859 | -462 |
| 1990 | 276 | 622 | -346 |
| 1991 | 279 | 597 | -318 |
| 1992 | 319 | 662 | -343 |
| 1993 | 359 | 726 | -367 |
| 1994 | 399 | 792 | -393 |
| 1995 | 402 | 800 | -398 |
| 1996 | 403 | 799 | -396 |
| 1997 | 403 | 762 | -359 |
| 1998 | 399 | 739 | -340 |
| 1999 | 397 | 717 | -320 |
| 2000 | 395 | 694 | -299 |
| 2001 | 394 | 676 | -282 |
| 2002 | 392 | 658 | -266 |
| 2003 | 393 | 649 | -256 |
| 2004 | 392 | 632 | -240 |
| 2005 | 392 | 608 | -216 |

Table 21. Projected Net Increase or Decrease in Fiscal Balance from Addition of the Westside 9,026 Scenario

| | State | Counties | | | | Municipalities within Region |
|---|---|---|---|---|---|---|
| | | Big Horn | Hot Springs | Park | Washakie | |
| | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | -117 | 2 | 1 | 2 | 27 | -22 |
| 1995 | -119 | 6 | 2 | 3 | 48 | -21 |
| 2000 | -83 | 6 | 2 | 2 | 50 | -12 |
| 2005 | -43 | 6 | 2 | 3 | 55 | -1 |

Table 22. Projected Net Increase or Decrease in Fiscal Balance from Addition of the Westside 20,718 Scenario

| | State | Counties | | | | Municipalities within Region |
|---|---|---|---|---|---|---|
| | | Big Horn | Hot Springs | Park | Washakie | |
| | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | -346 | 8 | 3 | 4 | 25 | -45 |
| 1995 | -398 | 13 | 3 | 6 | 38 | -57 |
| 2000 | -299 | 16 | 5 | 6 | 43 | -32 |
| 2005 | -216 | 15 | 4 | 7 | 49 | -11 |

# CHAPTER V

## Results of the Middle Fork Analyses

While the Westside scenarios develop water for agricultural use only, building a reservoir on the Middle Fork of the Powder River could provide a substantial amount of water for nonagricultural uses. The analyses presented in this chapter examine the expected impacts associated with two Middle Fork scenarios. The first involves construction, operation and maintenance of the proposed Middle Fork Dam and Reservoir with it supplying water for the supplemental irrigation of 5,100 acres of cropland. The second scenario is similar to the first, except that the project would also supply water for the operation of a coal-gasification plant with the capacity to produce 375 million standard cubic feet of gas daily. Since this second scenario would involve the processing of locally mined coal using a capital intensive process, the property and coal severance tax revenues expected with this scenario are substantial.

An overview of the construction, operation and maintenance costs of the Middle Fork reservoir project and coal-gasification project are provided in Tables 23 and 24, respectively. Construction of a 375 MMSCFD coal-gasification plant is estimated to cost more than 50 times as much as the Middle Fork reservoir. Addition of this large-scale energy plant as an additional user of Middle Fork water would greatly multiply the economic, demographic and public-sector impacts associated with the Middle Fork project.

### Regional Economic Impact Projections

Construction of the Middle Fork reservoir for supplemental irrigation of cropland would cost nearly the same as the Westside 9,026 acre project, but would generate far less economic activity. The first Middle Fork project

scenario is projected to affect business activity, income and employment only slightly, but the impact projections for the second scenario, which adds a 375 MMSCFD coal-gasification plant, are substantial (Tables 25-32). For the second scenario business activity, income and employment in region 1 respectively are projected to increase by 8.9, 13.3 and 20.3 percent during the first year of construction. These growth rates would create significant in-migration into the region - especially into Campbell County. Initially, the region would be unable to supply the additional private and public services demanded by project related workers. Furthermore, the population of region 1 is projected to increase by 5.5 percent during the first year of project construction (Table 33).

Table 23. Middle Fork Dam and Reservoir Project

| Year | Construction Costs [a] Contract Construction | Payroll & Salaries | Operation and Maintenance Costs Material & Supplies | Payroll & Salaries | Agricultural Revenue |
|---|---|---|---|---|---|
| | | (1980 dollars) | | | |
| 1986 | | | | | |
| 1987 | | | | | |
| 1988 | 2,371,774 | 3,107,300 | | | |
| 1989 | 3,452,574 | 2,026,500 | | | |
| 1990 | | | 105,438 | 54,040 | 307,989 |
| 1991 | | | 105,438 | 54,040 | 307,989 |
| . | | | . | . | . |
| . | | | . | . | . |
| . | | | . | . | . |
| 2005 | | | 105,438 | 54,040 | 307,989 |

[a] Construction costs exclude fees for engineering and legal services, interest during construction and allowances for contingencies.

Table 24. 375 MMSCFD Coal Gasification Project

| Year | Construction Costs [a] Contract Construction | Payroll & Salaries | Operation and Maintenance Costs Material & Supplies | Payroll & Salaries |
|---|---|---|---|---|
| | | (1980 dollars) | | |
| 1986 | | | | |
| 1987 | | | | |
| 1988 | 69,993,420 | 47,285,000 | | |
| 1989 | 69,993,420 | 47,285,000 | | |
| 1990 | " | " | | |
| 1991 | " | " | | |
| 1992 | 69,993,420 | 47,285,000 | 14,659,803 | 13,510,000 |
| 1993 | | | 29,319,606 | 27,020,000 |
| 1994 | | | 29,319,606 | 27,020,000 |
| . | | | . | . |
| . | | | . | . |
| . | | | . | . |
| 2005 | | | 29,319,606 | 27,020,000 |

[a] Construction costs exclude fees for engineering and legal services, interest during construction and allowances for contingencies.

Table 25. Projected Business Activity for the Middle Fork Scenarios, Region 1.

| | Middle Fork (No Project) ($000) | Middle Fork Reservoir ($000) | Coal Gasification ($000) | Middle Fork Reservoir & Gasification Plant ($000) |
|---|---|---|---|---|
| 1981 | 2,206,972 | 2,206,972 | 2,206,972 | 2,206,972 |
| 1982 | 2,250,871 | 2,250,871 | 2,250,871 | 2,250,871 |
| 1983 | 2,273,318 | 2,273,318 | 2,273,318 | 2,273,318 |
| 1984 | 2,339,581 | 2,339,581 | 2,339,581 | 2,339,581 |
| 1985 | 2,398,463 | 2,398,463 | 2,398,463 | 2,398,463 |
| 1986 | 2,454,951 | 2,454,951 | 2,454,951 | 2,454,951 |
| 1987 | 2,512,538 | 2,512,538 | 2,512,538 | 2,512,538 |
| 1988 | 2,569,410 | 2,578,081 | 2,789,489 | 2,798,160 |
| 1989 | 2,630,195 | 2,639,354 | 2,850,274 | 2,859,433 |
| 1990 | 2,690,276 | 2,690,804 | 2,910,355 | 2,910,883 |
| 1991 | 2,745,270 | 2,745,798 | 2,965,349 | 2,965,877 |
| 1992 | 2,795,376 | 2,795,904 | 3,043,641 | 3,044,169 |
| 1993 | 2,845,485 | 2,846,013 | 2,922,449 | 2,922,977 |
| 1994 | 2,895,593 | 2,896,121 | 2,972,557 | 2,973,085 |
| 1995 | 2,945,700 | 2,946,228 | 3,022,664 | 3,023,192 |
| 1996 | 2,995,809 | 2,996,337 | 3,072,773 | 3,073,301 |
| 1997 | 3,045,915 | 3,046,443 | 3,122,879 | 3,123,407 |
| 1998 | 3,096,024 | 3,096,552 | 3,172,988 | 3,173,516 |
| 1999 | 3,146,131 | 3,146,659 | 3,223,095 | 3,223,623 |
| 2000 | 3,196,241 | 3,196,769 | 3,273,205 | 3,273,733 |
| 2001 | 3,246,345 | 3,246,873 | 3,323,309 | 3,323,837 |
| 2002 | 3,296,456 | 3,296,984 | 3,373,420 | 3,373,948 |
| 2003 | 3,346,565 | 3,347,093 | 3,423,529 | 3,424,057 |
| 2004 | 3,396,669 | 3,397,197 | 3,473,633 | 3,474,161 |
| 2005 | 3,446,779 | 3,447,307 | 3,523,743 | 3,524,271 |

Table 26. Projected Increase in Business Activity from Addition of the Middle Fork Scenario, Region 1.

| | Change in Business Activity | | Middle Fork Reservoir and Coal Gasification |
|---|---|---|---|
| | Middle Fork Reservoir ($000) | Coal Gasification ($000) | ($000) |
| 1981 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 |
| 1988 | 8,671 | 220,079 | 228,750 |
| 1989 | 9,159 | 220,079 | 229,238 |
| 1990 | 528 | 220,079 | 220,607 |
| 1991 | 528 | 220,079 | 220,607 |
| 1992 | 528 | 248,265 | 248,793 |
| 1993 | 528 | 76,964 | 77,492 |
| 1994 | 528 | 76,964 | 77,492 |
| 1995 | 528 | 76,964 | 77,492 |
| 1996 | 528 | 76,964 | 77,492 |
| 1997 | 528 | 76,964 | 77,492 |
| 1998 | 528 | 76,964 | 77,492 |
| 1999 | 528 | 76,964 | 77,492 |
| 2000 | 528 | 76,964 | 77,492 |
| 2001 | 528 | 76,964 | 77,492 |
| 2002 | 528 | 76,964 | 77,492 |
| 2003 | 528 | 76,964 | 77,492 |
| 2004 | 528 | 76,964 | 77,492 |
| 2005 | 528 | 76,964 | 77,492 |

Table 27. Projected Personal Income for the Middle Fork Scenarios, Region 1.

| | Middle Fork (No Projects) ($000) | Middle Fork Reservoir ($000) | Middle Fork Industrial ($000) | Middle Fork Reservoir & Industrial ($000) |
|---|---|---|---|---|
| 1981 | 877,016 | 877,016 | 877,016 | 877,016 |
| 1982 | 891,795 | 891,795 | 891,795 | 891,795 |
| 1983 | 883,616 | 883,616 | 883,616 | 883,616 |
| 1984 | 910,552 | 910,552 | 910,552 | 910,552 |
| 1985 | 932,422 | 932,422 | 932,422 | 932,422 |
| 1986 | 952,649 | 952,649 | 952,649 | 952,649 |
| 1987 | 973,630 | 973,630 | 973,630 | 973,630 |
| 1988 | 994,120 | 1,000,655 | 1,119,710 | 1,126,245 |
| 1989 | 1,017,300 | 1,022,843 | 1,142,890 | 1,148,433 |
| 1990 | 1,039,993 | 1,040,316 | 1,165,583 | 1,165,906 |
| 1991 | 1,059,192 | 1,059,515 | 1,184,782 | 1,185,105 |
| 1992 | 1,075,037 | 1,075,360 | 1,224,329 | 1,224,652 |
| 1993 | 1,090,882 | 1,091,205 | 1,143,739 | 1,144,062 |
| 1994 | 1,106,727 | 1,107,050 | 1,159,584 | 1,159,907 |
| 1995 | 1,122,571 | 1,122,894 | 1,175,428 | 1,175,751 |
| 1996 | 1,138,416 | 1,138,739 | 1,191,273 | 1,191,596 |
| 1997 | 1,154,261 | 1,154,584 | 1,207,118 | 1,207,441 |
| 1998 | 1,170,106 | 1,170,429 | 1,222,963 | 1,223,286 |
| 1999 | 1,185,951 | 1,186,274 | 1,238,808 | 1,239,131 |
| 2000 | 1,201,796 | 1,202,119 | 1,254,653 | 1,254,976 |
| 2001 | 1,217,641 | 1,217,964 | 1,270,498 | 1,270,821 |
| 2002 | 1,233,485 | 1,233,808 | 1,286,342 | 1,286,665 |
| 2003 | 1,249,330 | 1,249,653 | 1,302,187 | 1,302,510 |
| 2004 | 1,265,175 | 1,265,498 | 1,318,032 | 1,318,355 |
| 2005 | 1,281,020 | 1,281,343 | 1,333,877 | 1,334,200 |

Table 28. Projected Increase in Personal Income from Addition of the Middle Fork Scenarios.

| | Change in Personal Income | | Middle Fork Reservoir and Coal Gasification |
|---|---|---|---|
| | Middle Fork Reservoir | Coal Gasification | |
| | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 |
| 1988 | 6,535 | 125,590 | 132,125 |
| 1989 | 5,543 | 125,590 | 131,133 |
| 1990 | 323 | 125,590 | 125,913 |
| 1991 | 323 | 125,590 | 125,913 |
| 1992 | 323 | 149,292 | 149,615 |
| 1993 | 323 | 52,857 | 53,180 |
| 1994 | 323 | 52,857 | 53,180 |
| 1995 | 323 | 52,857 | 53,180 |
| 1996 | 323 | 52,857 | 53,180 |
| 1997 | 323 | 52,857 | 53,180 |
| 1998 | 323 | 52,857 | 53,180 |
| 1999 | 323 | 52,857 | 53,180 |
| 2000 | 323 | 52,857 | 53,180 |
| 2001 | 323 | 52,857 | 53,180 |
| 2002 | 323 | 52,857 | 53,180 |
| 2003 | 323 | 52,857 | 53,180 |
| 2004 | 323 | 52,857 | 53,180 |
| 2005 | 323 | 52,857 | 53,180 |

Table 29. Projected Baseline Employment by Sector, Region 1.

| | Agricul-ture | Metal Mining | Coal Mining | Pet. Exp. Ext. | Contract Other Mining | Contract Const-ruction | Lumber Prod. | Whls. Trade /Ag. Proc. | Pet. Ref. | Metal Proc. | Trans. | Com. Util. | Thermal Power Gen. | Retail Trade | F.I. R.E. | Bus. /Pers. Serv. | Prof. /Soc. Serv. | Gov. | Project | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 | 1848 | 3 | 2255 | 2536 | 496 | 5495 | 563 | 2085 | 132 | 0 | 831 | 1049 | 155 | 6778 | 1270 | 2489 | 1922 | 5263 | 1158 | 36,329 |
| 1982 | 1842 | 3 | 2165 | 2562 | 496 | 5224 | 570 | 2079 | 133 | 0 | 828 | 1048 | 152 | 6890 | 1281 | 2529 | 1953 | 5264 | 1223 | 36,242 |
| 1983 | 1835 | 3 | 2083 | 2587 | 489 | 4650 | 577 | 2068 | 134 | 0 | 820 | 1029 | 150 | 6927 | 1262 | 2525 | 1934 | 5147 | 892 | 35,111 |
| 1984 | 1829 | 3 | 2006 | 2611 | 500 | 4818 | 583 | 2067 | 135 | 0 | 824 | 1040 | 148 | 7098 | 1291 | 2589 | 1991 | 5217 | 1054 | 35,803 |
| 1985 | 1823 | 3 | 1936 | 2633 | 511 | 4977 | 589 | 2063 | 136 | 0 | 825 | 1045 | 146 | 7202 | 1312 | 2642 | 2037 | 5258 | 1142 | 36,281 |
| 1986 | 1817 | 3 | 1871 | 2654 | 521 | 5135 | 595 | 2058 | 137 | 0 | 826 | 1049 | 145 | 7283 | 1331 | 2692 | 2079 | 5288 | 1206 | 36,691 |
| 1987 | 1812 | 3 | 1810 | 2675 | 532 | 5298 | 601 | 2054 | 137 | 0 | 827 | 1054 | 143 | 7370 | 1351 | 2743 | 2122 | 5321 | 1281 | 37,135 |
| 1988 | 1807 | 3 | 1753 | 2694 | 542 | 5461 | 606 | 2050 | 138 | 0 | 828 | 1058 | 141 | 7450 | 1370 | 2793 | 2164 | 5351 | 1356 | 37,567 |
| 1989 | 1802 | 3 | 1701 | 2713 | 553 | 5634 | 611 | 2048 | 139 | 0 | 830 | 1064 | 140 | 7560 | 1392 | 2847 | 2212 | 5393 | 1456 | 38,097 |
| 1990 | 1797 | 3 | 1651 | 2730 | 564 | 5808 | 616 | 2045 | 140 | 0 | 831 | 1070 | 139 | 7661 | 1413 | 2900 | 2259 | 5432 | 1556 | 38,614 |
| 1991 | 1792 | 3 | 1605 | 2747 | 574 | 5976 | 621 | 2041 | 140 | 0 | 831 | 1072 | 137 | 7719 | 1429 | 2946 | 2298 | 5452 | 1605 | 38,991 |
| 1992 | 1788 | 3 | 1561 | 2763 | 584 | 6139 | 626 | 2035 | 141 | 0 | 830 | 1072 | 136 | 7738 | 1441 | 2985 | 2330 | 5456 | 1605 | 39,234 |
| 1993 | 1784 | 3 | 1520 | 2779 | 594 | 6305 | 630 | 2030 | 142 | 0 | 829 | 1072 | 135 | 7757 | 1452 | 3024 | 2362 | 5460 | 1605 | 39,482 |
| 1994 | 1779 | 3 | 1481 | 2794 | 604 | 6473 | 635 | 2025 | 142 | 0 | 829 | 1072 | 134 | 7775 | 1463 | 3063 | 2393 | 5464 | 1605 | 39,733 |
| 1995 | 1775 | 3 | 1444 | 2808 | 614 | 6644 | 639 | 2020 | 143 | 0 | 828 | 1071 | 133 | 7793 | 1475 | 3101 | 2425 | 5467 | 1605 | 39,987 |
| 1996 | 1771 | 3 | 1409 | 2822 | 624 | 6818 | 643 | 2015 | 144 | 0 | 827 | 1071 | 132 | 7810 | 1486 | 3139 | 2456 | 5471 | 1605 | 40,245 |
| 1997 | 1768 | 3 | 1377 | 2835 | 633 | 6995 | 647 | 2011 | 144 | 0 | 826 | 1071 | 131 | 7827 | 1496 | 3177 | 2487 | 5474 | 1605 | 40,506 |
| 1998 | 1764 | 3 | 1345 | 2847 | 643 | 7175 | 651 | 2006 | 145 | 0 | 825 | 1071 | 130 | 7843 | 1507 | 3214 | 2518 | 5477 | 1605 | 40,771 |
| 1999 | 1761 | 3 | 1316 | 2860 | 653 | 7358 | 654 | 2002 | 145 | 0 | 824 | 1071 | 130 | 7859 | 1518 | 3251 | 2549 | 5480 | 1605 | 41,038 |
| 2000 | 1757 | 3 | 1287 | 2871 | 663 | 7544 | 658 | 1998 | 146 | 0 | 824 | 1070 | 129 | 7875 | 1528 | 3288 | 2580 | 5483 | 1605 | 41,310 |
| 2001 | 1754 | 3 | 1260 | 2883 | 673 | 7733 | 661 | 1994 | 146 | 0 | 823 | 1070 | 128 | 7891 | 1538 | 3325 | 2611 | 5486 | 1605 | 41,584 |
| 2002 | 1751 | 3 | 1235 | 2894 | 683 | 7926 | 665 | 1990 | 147 | 0 | 822 | 1070 | 127 | 7906 | 1548 | 3361 | 2641 | 5489 | 1605 | 41,862 |
| 2003 | 1748 | 3 | 1210 | 2904 | 693 | 8122 | 668 | 1986 | 147 | 0 | 822 | 1070 | 127 | 7921 | 1558 | 3397 | 2672 | 5492 | 1605 | 42,144 |
| 2004 | 1745 | 3 | 1187 | 2914 | 703 | 8321 | 671 | 1983 | 148 | 0 | 821 | 1070 | 126 | 7935 | 1568 | 3432 | 2702 | 5495 | 1605 | 42,429 |
| 2005 | 1742 | 3 | 1164 | 2924 | 713 | 8525 | 674 | 1979 | 148 | 0 | 820 | 1070 | 126 | 7949 | 1577 | 3468 | 2733 | 5497 | 1605 | 42,717 |

Table 30. Projected Increase in Employment by Sector from Addition of the Middle Fork Reservoir Scenario, Region 1.

| | Agriculture | Metal Mining | Coal Mining | Pet. Exp. Ext. | Contract Other Mining | Contract Const- ruction | Lumber Prod. | Whls. Trade /Ag. Proc. | Pet. Ref. | Metal Proc. | Trans. | Thermal Com. Util. | Thermal Power Gen. | Retail Trade | F.I. R.E. | Bus. /Pers. Serv. | Prof. /Soc. Serv. | Gov. | Project | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 0 | 0 | 0 | 0 | 3 | 104 | 0 | 3 | 0 | 0 | 2 | 5 | 0 | 42 | 9 | 12 | 15 | 33 | 117 | 345 |
| 1989 | 0 | 0 | 0 | 0 | 3 | 144 | 0 | 2 | 0 | 0 | 2 | 5 | 0 | 47 | 8 | 11 | 12 | 29 | 80 | 343 |
| 1990 | 0 | 0 | 0 | 0 | 0 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 1 | 2 | 5 | 114 |
| 1991 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 4 | 1 | 1 | 1 | 2 | 5 | 17 |
| 1992 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 1 | 1 | 2 | 5 | 17 |
| 1993 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 1 | 0 | 2 | 5 | 14 |
| 1994 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 2 | 5 | 15 |
| 1995 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 1 | 0 | 2 | 5 | 13 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 1 | 1 | 1 | 5 | 14 |
| 1997 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 2 | 5 | 15 |
| 1998 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 2 | 5 | 16 |
| 1999 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 1 | 1 | 2 | 5 | 15 |
| 2000 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 1 | 2 | 5 | 14 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 1 | 0 | 0 | 2 | 5 | 13 |
| 2002 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 2 | 5 | 14 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 2 | 5 | 15 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 5 | 12 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 1 | 0 | 2 | 5 | 14 |

Table 31. Projected Increase in Employment by Sector from Addition of the Middle Fork Coal Gasification Scenario, Region 1.

| | Agricul-ture | Metal Mining | Coal Mining | Pet. Exp. Ext. | Other Mining | Contract Const-ruction | Lumber Prod. | Whls. Trade /Ag. Proc. | Pet. Ref. | Metal Proc. | Trans. | Com. Util. | Thermal Power Gen. | Retail Trade | F.I. R.E. | Bus. /Pers. Serv. | Prof. /Soc. Serv. | Gov. | Project | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 0 | 0 | 0 | 0 | 72 | 2931 | 0 | 47 | 0 | 0 | 55 | 11 | 0 | 1,087 | 173 | 247 | 274 | 652 | 1,750 | 7,299 |
| 1989 | 0 | 0 | 0 | 0 | 71 | 2954 | 0 | 46 | 0 | 0 | 54 | 9 | 0 | 1,073 | 171 | 246 | 273 | 642 | 1,750 | 7,289 |
| 1990 | 0 | 0 | 0 | 0 | 71 | 2978 | 0 | 45 | 0 | 0 | 53 | 7 | 0 | 1,060 | 170 | 245 | 273 | 631 | 1,750 | 7,283 |
| 1991 | 0 | 0 | 0 | 0 | 71 | 3002 | 0 | 44 | 0 | 0 | 52 | 5 | 0 | 1,047 | 169 | 244 | 272 | 622 | 1,750 | 7,278 |
| 1992 | 0 | 0 | 0 | 0 | 74 | 3082 | 0 | 52 | 0 | 0 | 88 | 121 | 0 | 1,240 | 197 | 286 | 322 | 721 | 2,250 | 8,433 |
| 1993 | 0 | 0 | 0 | 0 | 6 | 131 | 0 | 22 | 0 | 0 | 49 | 41 | 0 | 592 | 67 | 98 | 113 | 248 | 1,000 | 2,367 |
| 1994 | 0 | 0 | 0 | 0 | 6 | 132 | 0 | 22 | 0 | 0 | 18 | 40 | 0 | 586 | 67 | 97 | 114 | 244 | 1,000 | 2,326 |
| 1995 | 0 | 0 | 0 | 0 | 6 | 133 | 0 | 22 | 0 | 0 | 17 | 41 | 0 | 578 | 66 | 97 | 113 | 241 | 1,000 | 2,314 |
| 1996 | 0 | 0 | 0 | 0 | 6 | 134 | 0 | 21 | 0 | 0 | 17 | 40 | 0 | 572 | 65 | 97 | 113 | 237 | 1,000 | 2,302 |
| 1997 | 0 | 0 | 0 | 0 | 7 | 135 | 0 | 21 | 0 | 0 | 17 | 39 | 0 | 565 | 65 | 96 | 113 | 234 | 1,000 | 2,292 |
| 1998 | 0 | 0 | 0 | 0 | 7 | 136 | 0 | 21 | 0 | 0 | 17 | 38 | 0 | 559 | 65 | 96 | 113 | 231 | 1,000 | 2,283 |
| 1999 | 0 | 0 | 0 | 0 | 7 | 137 | 0 | 20 | 0 | 0 | 17 | 37 | 0 | 553 | 64 | 96 | 113 | 228 | 1,000 | 2,272 |
| 2000 | 0 | 0 | 0 | 0 | 7 | 139 | 0 | 20 | 0 | 0 | 16 | 36 | 0 | 547 | 63 | 95 | 112 | 225 | 1,000 | 2,260 |
| 2001 | 0 | 0 | 0 | 0 | 7 | 140 | 0 | 19 | 0 | 0 | 16 | 37 | 0 | 541 | 63 | 95 | 112 | 222 | 1,000 | 2,252 |
| 2002 | 0 | 0 | 0 | 0 | 6 | 141 | 0 | 19 | 0 | 0 | 16 | 36 | 0 | 535 | 63 | 94 | 112 | 219 | 1,000 | 2,241 |
| 2003 | 0 | 0 | 0 | 0 | 6 | 143 | 0 | 19 | 0 | 0 | 15 | 35 | 0 | 529 | 62 | 94 | 112 | 216 | 1,000 | 2,231 |
| 2004 | 0 | 0 | 0 | 0 | 6 | 144 | 0 | 18 | 0 | 0 | 15 | 35 | 0 | 524 | 62 | 94 | 112 | 213 | 1,000 | 2,223 |
| 2005 | 0 | 0 | 0 | 0 | 6 | 145 | 0 | 18 | 0 | 0 | 15 | 34 | 0 | 518 | 62 | 93 | 111 | 211 | 1,000 | 2,213 |

Table 32. Projected Increase in Employment by Sector from Addition of the Middle Fork Reservoir and Coal Gasification Scenarios, Region 1.

| | Agriculture | Metal Mining | Coal Mining | Pet. Exp. Ext. | Contract Other Mining | Contract Construction | Lumber Prod. | Whls. Trade /Ag. Proc. | Pet. Ref. | Metal Proc. | Trans. | Thermal Com. Util. | Thermal Power Gen. | Retail Trade | F.I. R.E. | Bus. /Pers. Serv. | Prof. /Soc. Serv. | Gov. | Project | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 0 | 0 | 0 | 0 | 75 | 3,035 | 0 | 50 | 0 | 0 | 57 | 16 | 0 | 1,129 | 182 | 259 | 289 | 685 | 1,867 | 7,644 |
| 1989 | 0 | 0 | 0 | 0 | 74 | 3,098 | 0 | 48 | 0 | 0 | 56 | 14 | 0 | 1,120 | 179 | 257 | 285 | 671 | 1,830 | 7,632 |
| 1990 | 0 | 0 | 0 | 0 | 71 | 3,079 | 0 | 45 | 0 | 0 | 53 | 7 | 0 | 1,064 | 170 | 246 | 274 | 633 | 1,755 | 7,397 |
| 1991 | 0 | 0 | 0 | 0 | 71 | 3,003 | 0 | 44 | 0 | 0 | 53 | 6 | 0 | 1,051 | 170 | 245 | 273 | 624 | 1,755 | 7,295 |
| 1992 | 0 | 0 | 0 | 0 | 74 | 3,083 | 0 | 53 | 0 | 0 | 89 | 121 | 0 | 1,244 | 197 | 287 | 323 | 723 | 2,255 | 8,450 |
| 1993 | 0 | 0 | 0 | 0 | 6 | 132 | 0 | 22 | 0 | 0 | 50 | 41 | 0 | 595 | 68 | 99 | 113 | 250 | 1,005 | 2,381 |
| 1994 | 0 | 0 | 0 | 0 | 6 | 133 | 0 | 22 | 0 | 0 | 18 | 40 | 0 | 590 | 68 | 98 | 115 | 246 | 1,005 | 2,341 |
| 1995 | 0 | 0 | 0 | 0 | 6 | 134 | 0 | 22 | 0 | 0 | 17 | 42 | 0 | 581 | 66 | 98 | 113 | 243 | 1,005 | 2,327 |
| 1996 | 0 | 0 | 0 | 0 | 6 | 135 | 0 | 22 | 0 | 0 | 17 | 41 | 0 | 575 | 65 | 98 | 114 | 238 | 1,005 | 2,316 |
| 1997 | 0 | 0 | 0 | 0 | 8 | 136 | 0 | 21 | 0 | 0 | 17 | 39 | 0 | 568 | 66 | 97 | 114 | 236 | 1,005 | 2,307 |
| 1998 | 0 | 0 | 0 | 0 | 7 | 137 | 0 | 22 | 0 | 0 | 17 | 38 | 0 | 563 | 66 | 97 | 114 | 233 | 1,005 | 2,299 |
| 1999 | 0 | 0 | 0 | 0 | 7 | 138 | 0 | 20 | 0 | 0 | 18 | 37 | 0 | 557 | 64 | 97 | 114 | 230 | 1,005 | 2,287 |
| 2000 | 0 | 0 | 0 | 0 | 7 | 140 | 0 | 20 | 0 | 0 | 16 | 36 | 0 | 551 | 63 | 96 | 113 | 227 | 1,005 | 2,274 |
| 2001 | 0 | 0 | 0 | 0 | 7 | 141 | 0 | 19 | 0 | 0 | 16 | 38 | 0 | 544 | 64 | 95 | 112 | 224 | 1,005 | 2,265 |
| 2002 | 0 | 0 | 0 | 0 | 6 | 142 | 0 | 19 | 0 | 0 | 16 | 36 | 0 | 538 | 64 | 95 | 113 | 221 | 1,005 | 2,255 |
| 2003 | 0 | 0 | 0 | 0 | 6 | 144 | 0 | 20 | 0 | 0 | 15 | 35 | 0 | 532 | 63 | 95 | 113 | 218 | 1,005 | 2,246 |
| 2004 | 0 | 0 | 0 | 0 | 6 | 145 | 0 | 18 | 0 | 0 | 15 | 35 | 0 | 527 | 62 | 95 | 113 | 214 | 1,005 | 2,235 |
| 2005 | 0 | 0 | 0 | 0 | 6 | 146 | 0 | 18 | 0 | 0 | 16 | 34 | 0 | 521 | 63 | 94 | 111 | 213 | 1,005 | 2,227 |

Table 33. Projected Population from Addition of Middle Fork Scenarios, Region 1.

| | Middle Fork (No Projects) | | | Middle Fork Reservoir | | | Middle Fork Coal Gasification | | | Middle Fork Reservoir and Coal Gasification | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Population | Change | Percent Change | Population | Change | Percent Change | Population | Change | Percent Change | Population | Change | Percent Change |
| 1980 | 68,529 | | | 68,529 | | | 68,529 | | | 68,529 | | |
| 1981 | 69,248 | 719 | 1 | 69,248 | 719 | 1 | 69,248 | 719 | 1 | 69,248 | 719 | 1 |
| 1982 | 69,440 | 192 | 0 | 69,440 | 192 | 0 | 69,440 | 192 | 0 | 69,440 | 192 | 0 |
| 1983 | 69,361 | -79 | 0 | 69,361 | -79 | 0 | 69,361 | -79 | 0 | 69,361 | -79 | 0 |
| 1984 | 70,395 | 1,035 | 1 | 70,395 | 1,035 | 1 | 70,395 | 1,035 | 1 | 70,395 | 1,035 | 1 |
| 1985 | 71,533 | 1,138 | 2 | 71,533 | 1,138 | 2 | 71,533 | 1,138 | 2 | 71,533 | 1,138 | 2 |
| 1986 | 72,651 | 1,118 | 2 | 72,651 | 1,118 | 2 | 72,651 | 1,118 | 2 | 72,651 | 1,118 | 2 |
| 1987 | 73,819 | 1,168 | 2 | 73,819 | 1,168 | 2 | 73,819 | 1,168 | 2 | 73,819 | 1,168 | 2 |
| 1988 | 74,940 | 1,121 | 2 | 75,000 | 1,181 | 2 | 77,876 | 4,057 | 5 | 77,912 | 4,093 | 6 |
| 1989 | 76,155 | 1,215 | 2 | 76,202 | 1,202 | 2 | 79,101 | 1,225 | 2 | 79,136 | 1,225 | 2 |
| 1990 | 76,864 | 709 | 1 | 76,876 | 673 | 1 | 79,874 | 773 | 1 | 79,897 | 761 | 1 |
| 1991 | 77,299 | 435 | 1 | 77,308 | 432 | 1 | 80,314 | 439 | 1 | 80,335 | 438 | 1 |
| 1992 | 77,645 | 347 | 0 | 77,654 | 346 | 0 | 81,013 | 699 | 1 | 81,031 | 696 | 1 |
| 1993 | 78,211 | 566 | 1 | 78,220 | 566 | 1 | 80,914 | -99 | 0 | 80,924 | -108 | 0 |
| 1994 | 78,614 | 403 | 1 | 78,623 | 403 | 1 | 81,383 | 469 | 1 | 81,392 | 469 | 1 |
| 1995 | 78,923 | 309 | 0 | 78,932 | 309 | 0 | 81,644 | 261 | 0 | 81,653 | 261 | 0 |
| 1996 | 79,342 | 419 | 1 | 79,351 | 419 | 1 | 82,043 | 400 | 0 | 82,053 | 400 | 0 |
| 1997 | 79,653 | 311 | 0 | 79,662 | 312 | 0 | 82,341 | 297 | 0 | 82,350 | 297 | 0 |
| 1998 | 79,936 | 283 | 0 | 79,946 | 283 | 0 | 82,601 | 261 | 0 | 82,611 | 261 | 0 |
| 1999 | 80,289 | 353 | 0 | 80,296 | 350 | 0 | 82,929 | 328 | 0 | 82,938 | 327 | 0 |
| 2000 | 80,570 | 281 | 0 | 80,577 | 281 | 0 | 83,227 | 298 | 0 | 83,235 | 296 | 0 |
| 2001 | 80,998 | 428 | 1 | 81,007 | 430 | 1 | 83,676 | 449 | 1 | 83,683 | 449 | 1 |
| 2002 | 81,522 | 524 | 1 | 81,531 | 524 | 1 | 84,207 | 530 | 1 | 84,214 | 530 | 1 |
| 2003 | 82,072 | 550 | 1 | 82,080 | 549 | 1 | 84,778 | 571 | 1 | 84,786 | 572 | 1 |
| 2004 | 82,572 | 500 | 1 | 82,581 | 500 | 1 | 85,257 | 479 | 1 | 85,266 | 479 | 1 |
| 2005 | 82,749 | 177 | 0 | 82,758 | 177 | 0 | 85,409 | 152 | 0 | 85,417 | 152 | 0 |

Public Sector Effects

Projections of the impact of the two Middle Fork scenarios on public school systems in region 1 are very dissimilar (Tables 34-37). Only 11 additional students would require educational services during the first year of project construction, if only the Middle Fork reservoir is developed. But an additional 700 students are projected to require educational services during the first year of project construction if construction of the coal-gasification plant and Middle Fork reservoir both began in the same year. Demands for all other public services (i.e., law enforcement, fire protection, road construction, recreation and public welfare) would be affected similarly.

Projections of the increases in state revenues, costs and net fiscal balances associated Middle Fork project scenarios are provided in Tables 38-46. Both projects would provide positive net revenue to the state treasury. Construction and operation of Middle Fork reservoir for the supplemental irrigation of existing cropland would generate only a small amount of state revenue, but the state costs associated with this project are even less. State costs are low because the project is projected to have an insignificant impact on the region's population. Construction and operation of a 375 MMSCFD coal-gasification plant changes the fiscal situation for the state in several ways (Table 43). First, during the 5 years the plant is under construction, annual net revenue projections from the state's perspective range from -$1,075,000 to -$1,377,000. Once the plant begins operation, it is projected to provide large net revenues to the state, because of the severance tax revenue generated from mining coal for the plant. Annual net revenue for the state would average about $5.5 million as the plant operates during the period covered in this analysis.

County and municipal governments within region 1 are projected to

experience nearly no fiscal impact from the development of the Middle Fork reservoir when it only supplies supplemental irrigation water. Slight fiscal balance gains at the county level merely offset slight fiscal balance losses among municipalities. Construction and operation of a coal gasification plant, however, is projected to cause increases in fiscal balances at both the county and municipal levels. The high wage levels and capital intenseness of this industry cause its fiscal impacts to be positive for local public sectors.

Table 34. Projected Baseline Number of Students by County, Region 1.

| | Campbell | | | Crook | | | Johnson | | | Sheridan | | | Weston | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total |
| 1981 | 2,737 | 2,457 | 5,194 | 527 | 579 | 1,106 | 649 | 633 | 1,282 | 2,301 | 2,327 | 4,628 | 691 | 710 | 1,401 |
| 1982 | 2,777 | 2,395 | 5,172 | 517 | 578 | 1,095 | 629 | 650 | 1,279 | 2,293 | 2,331 | 4,624 | 675 | 699 | 1,374 |
| 1983 | 2,797 | 2,369 | 5,166 | 506 | 561 | 1,067 | 630 | 653 | 1,283 | 2,300 | 2,320 | 4,620 | 691 | 687 | 1,378 |
| 1984 | 2,927 | 2,457 | 5,384 | 513 | 535 | 1,048 | 631 | 635 | 1,266 | 2,326 | 2,298 | 4,624 | 716 | 659 | 1,375 |
| 1985 | 3,585 | 2,568 | 6,153 | 615 | 509 | 1,124 | 744 | 623 | 1,367 | 2,714 | 2,236 | 4,950 | 829 | 642 | 1,471 |
| 1986 | 3,857 | 2,688 | 6,545 | 620 | 495 | 1,115 | 738 | 628 | 1,366 | 2,738 | 2,204 | 4,942 | 827 | 623 | 1,450 |
| 1987 | 4,126 | 2,820 | 6,946 | 626 | 492 | 1,118 | 746 | 620 | 1,366 | 2,763 | 2,211 | 4,974 | 827 | 612 | 1,439 |
| 1988 | 4,365 | 2,995 | 7,360 | 646 | 482 | 1,128 | 754 | 623 | 1,377 | 2,795 | 2,234 | 5,029 | 825 | 614 | 1,439 |
| 1989 | 4,611 | 3,182 | 7,793 | 662 | 484 | 1,146 | 762 | 618 | 1,380 | 2,821 | 2,273 | 5,094 | 826 | 609 | 1,435 |
| 1990 | 4,557 | 3,666 | 8,223 | 638 | 549 | 1,187 | 718 | 697 | 1,415 | 2,677 | 2,535 | 5,212 | 768 | 682 | 1,450 |
| 1991 | 4,631 | 3,834 | 8,465 | 651 | 549 | 1,200 | 717 | 687 | 1,404 | 2,693 | 2,556 | 5,249 | 762 | 676 | 1,438 |
| 1992 | 4,672 | 3,984 | 8,656 | 660 | 548 | 1,208 | 726 | 682 | 1,408 | 2,707 | 2,563 | 5,270 | 756 | 672 | 1,428 |
| 1993 | 4,717 | 4,126 | 8,843 | 673 | 562 | 1,235 | 729 | 688 | 1,417 | 2,720 | 2,587 | 5,307 | 745 | 673 | 1,418 |
| 1994 | 4,721 | 4,242 | 8,963 | 681 | 578 | 1,259 | 732 | 696 | 1,428 | 2,724 | 2,608 | 5,332 | 728 | 682 | 1,410 |
| 1995 | 4,474 | 4,363 | 8,837 | 646 | 595 | 1,241 | 683 | 702 | 1,385 | 2,542 | 2,653 | 5,195 | 666 | 672 | 1,338 |
| 1996 | 4,400 | 4,468 | 8,868 | 649 | 604 | 1,253 | 683 | 700 | 1,383 | 2,535 | 2,677 | 5,212 | 649 | 669 | 1,318 |
| 1997 | 4,326 | 4,555 | 8,881 | 648 | 611 | 1,259 | 680 | 709 | 1,389 | 2,518 | 2,701 | 5,219 | 630 | 661 | 1,291 |
| 1998 | 4,261 | 4,618 | 8,879 | 643 | 621 | 1,264 | 678 | 707 | 1,385 | 2,500 | 2,721 | 5,221 | 611 | 647 | 1,258 |
| 1999 | 4,210 | 4,663 | 8,873 | 637 | 628 | 1,265 | 676 | 709 | 1,385 | 2,486 | 2,731 | 5,217 | 592 | 630 | 1,222 |
| 2000 | 4,187 | 4,342 | 8,529 | 626 | 574 | 1,200 | 672 | 635 | 1,307 | 2,474 | 2,477 | 4,951 | 576 | 559 | 1,135 |
| 2001 | 4,182 | 4,281 | 8,463 | 618 | 575 | 1,193 | 670 | 632 | 1,302 | 2,465 | 2,477 | 4,942 | 561 | 544 | 1,105 |
| 2002 | 4,197 | 4,212 | 8,409 | 612 | 576 | 1,188 | 672 | 633 | 1,305 | 2,455 | 2,467 | 4,922 | 550 | 530 | 1,080 |
| 2003 | 4,249 | 4,162 | 8,411 | 605 | 575 | 1,180 | 672 | 633 | 1,305 | 2,439 | 2,447 | 4,886 | 540 | 517 | 1,057 |
| 2004 | 4,319 | 4,119 | 8,438 | 597 | 570 | 1,167 | 673 | 632 | 1,305 | 2,420 | 2,422 | 4,842 | 531 | 503 | 1,034 |
| 2005 | 4,407 | 4,082 | 8,489 | 592 | 563 | 1,155 | 673 | 628 | 1,301 | 2,418 | 2,391 | 4,809 | 523 | 488 | 1,011 |

Table 35. Projected Increase in Number of Students by County from Addition of the Middle Fork Reservoir, Region 1.

| | Campbell | | | Crook | | | Johnson | | | Sheridan | | | Weston | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 3 | 3 | 6 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 3 | 1 | 0 | 0 |
| 1989 | 2 | 2 | 4 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 1 | 0 | 0 |
| 1990 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1994 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 1 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 36. Projected Increase in Number of Students by County from Addition of the Middle Fork Coal Gasification Scenario, Region 1.

| | Campbell | | | Crook | | | Johnson | | | Sheridan | | | Weston | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 337 | 311 | 648 | 3 | 2 | 5 | 2 | 3 | 5 | 7 | 8 | 15 | 11 | 9 | 20 |
| 1989 | 343 | 304 | 647 | 3 | 2 | 5 | 2 | 3 | 5 | 7 | 7 | 14 | 12 | 10 | 22 |
| 1990 | 360 | 307 | 667 | 3 | 3 | 6 | 3 | 3 | 6 | 8 | 7 | 15 | 11 | 11 | 22 |
| 1991 | 372 | 304 | 676 | 3 | 3 | 6 | 3 | 2 | 5 | 8 | 7 | 15 | 11 | 10 | 21 |
| 1992 | 431 | 346 | 777 | 3 | 3 | 6 | 3 | 2 | 5 | 8 | 8 | 16 | 11 | 10 | 21 |
| 1993 | 415 | 306 | 721 | 1 | 1 | 2 | 1 | 0 | 1 | 3 | 2 | 5 | 8 | 6 | 14 |
| 1994 | 425 | 330 | 755 | 1 | 1 | 2 | 1 | 0 | 1 | 2 | 2 | 4 | 7 | 6 | 13 |
| 1995 | 410 | 331 | 741 | 1 | 1 | 2 | 1 | 0 | 1 | 3 | 2 | 5 | 7 | 7 | 14 |
| 1996 | 402 | 336 | 738 | 1 | 1 | 2 | 1 | 0 | 1 | 3 | 2 | 5 | 7 | 6 | 13 |
| 1997 | 395 | 340 | 735 | 1 | 1 | 2 | 1 | 1 | 2 | 3 | 2 | 5 | 7 | 6 | 13 |
| 1998 | 385 | 346 | 731 | 1 | 1 | 2 | 1 | 1 | 2 | 3 | 3 | 6 | 6 | 6 | 12 |
| 1999 | 367 | 342 | 709 | 1 | 1 | 2 | 1 | 1 | 2 | 3 | 3 | 6 | 5 | 6 | 11 |
| 2000 | 351 | 340 | 691 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 3 | 5 | 5 | 5 | 10 |
| 2001 | 336 | 338 | 674 | 1 | 2 | 3 | 1 | 1 | 2 | 2 | 3 | 5 | 5 | 5 | 10 |
| 2002 | 323 | 336 | 659 | 1 | 2 | 3 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 8 |
| 2003 | 306 | 331 | 637 | 2 | 2 | 4 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 8 |
| 2004 | 303 | 319 | 622 | 2 | 2 | 4 | 1 | 1 | 2 | 2 | 2 | 4 | 3 | 4 | 7 |
| 2005 | 296 | 304 | 600 | 2 | 1 | 3 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 8 |

Table 37. Projected Increase in Number of Students by County from Addition of the Middle Fork Reservoir and Coal Gasification Scenarios, Region 1.

| | Campbell | | | Crook | | | Johnson | | | Sheridan | | | Weston | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total | Primary | Secondary | Total |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 339 | 312 | 651 | 3 | 2 | 5 | 3 | 4 | 7 | 8 | 9 | 17 | 11 | 9 | 20 |
| 1989 | 334 | 305 | 639 | 3 | 2 | 5 | 3 | 4 | 7 | 13 | 8 | 21 | 12 | 10 | 22 |
| 1990 | 361 | 307 | 668 | 3 | 3 | 6 | 4 | 4 | 8 | 8 | 8 | 16 | 11 | 11 | 22 |
| 1991 | 372 | 304 | 676 | 3 | 3 | 6 | 4 | 3 | 7 | 8 | 8 | 16 | 11 | 10 | 21 |
| 1992 | 432 | 346 | 778 | 3 | 3 | 6 | 4 | 3 | 7 | 8 | 8 | 16 | 11 | 10 | 21 |
| 1993 | 415 | 306 | 721 | 3 | 3 | 6 | 2 | 1 | 3 | 3 | 2 | 5 | 8 | 6 | 14 |
| 1994 | 425 | 330 | 755 | 1 | 1 | 2 | 2 | 0 | 2 | 2 | 2 | 4 | 7 | 6 | 13 |
| 1995 | 410 | 332 | 742 | 1 | 1 | 2 | 1 | 0 | 1 | 3 | 2 | 5 | 7 | 7 | 14 |
| 1996 | 402 | 336 | 738 | 1 | 1 | 2 | 1 | 1 | 2 | 3 | 2 | 5 | 7 | 6 | 13 |
| 1997 | 395 | 340 | 735 | 1 | 1 | 2 | 1 | 2 | 3 | 3 | 2 | 5 | 7 | 6 | 13 |
| 1998 | 385 | 346 | 731 | 1 | 1 | 2 | 1 | 2 | 3 | 3 | 3 | 6 | 6 | 6 | 12 |
| 1999 | 367 | 342 | 709 | 1 | 1 | 2 | 1 | 1 | 2 | 3 | 3 | 6 | 5 | 6 | 11 |
| 2000 | 351 | 340 | 691 | 1 | 1 | 2 | 1 | 1 | 2 | 3 | 3 | 6 | 5 | 5 | 10 |
| 2001 | 336 | 338 | 674 | 1 | 2 | 3 | 1 | 1 | 2 | 2 | 3 | 5 | 5 | 5 | 10 |
| 2002 | 323 | 336 | 659 | 1 | 2 | 3 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 8 |
| 2003 | 311 | 332 | 643 | 2 | 2 | 4 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 8 |
| 2004 | 303 | 319 | 622 | 2 | 2 | 4 | 1 | 1 | 2 | 2 | 2 | 4 | 3 | 4 | 7 |
| 2005 | 297 | 304 | 601 | 2 | 1 | 3 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 8 |

Table 38. Projected Increase in State Revenues from Addition of the Middle Fork Reservoir Scenario, Region 1.

| | Sales and Use Tax | Highway Tax | Cig. - Tab Liq. - Beer | Special Districts Fund | Total Increase in Revenue |
|---|---|---|---|---|---|
| | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 143 | 6 | 1 | 0 | 150 |
| 1989 | 130 | 4 | 1 | 0 | 135 |
| 1990 | 13 | 1 | 0 | 0 | 14 |
| 1991 | 14 | 1 | 0 | 0 | 15 |
| 1992 | 14 | 1 | 0 | 0 | 15 |
| 1993 | 14 | 1 | 0 | 0 | 15 |
| 1994 | 14 | 1 | 0 | 0 | 15 |
| 1995 | 14 | 1 | 1 | 0 | 16 |
| 1996 | 14 | 1 | 0 | 0 | 15 |
| 1997 | 14 | 1 | 0 | 0 | 15 |
| 1998 | 14 | 1 | 0 | 0 | 15 |
| 1999 | 14 | 1 | 0 | 0 | 15 |
| 2000 | 14 | 1 | 0 | 0 | 15 |
| 2001 | 14 | 1 | 0 | 0 | 15 |
| 2002 | 14 | 1 | 0 | 0 | 15 |
| 2003 | 14 | 1 | 0 | 0 | 15 |
| 2004 | 14 | 1 | 0 | 0 | 15 |
| 2005 | 14 | 1 | 0 | 0 | 15 |

Table 39. Projected Increase in State Expenditures from Addition of the Middle Fork Reservoir Scenario, Region 1.

| | Education Transfers | Sales & Use Tax Transfers | Highway Fund | Cigarette and Tobacco | Highway Operating | General Gov't Functions | Highway Construction | Total Expenditures |
|---|---|---|---|---|---|---|---|---|
| | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 14 | 50 | 1 | 0 | 9 | 11 | 2 | 87 |
| 1989 | 8 | 47 | 1 | 0 | 2 | 14 | 2 | 74 |
| 1990 | 2 | 3 | 0 | 0 | 1 | 2 | 2 | 10 |
| 1991 | 2 | 3 | 0 | 0 | 1 | 1 | 2 | 9 |
| 1992 | 1 | 2 | 0 | 0 | 1 | 2 | 2 | 8 |
| 1993 | 0 | 3 | 0 | 0 | 1 | 2 | 2 | 8 |
| 1994 | 1 | 4 | 0 | 0 | 1 | 1 | 2 | 9 |
| 1995 | 3 | 4 | 0 | 0 | 1 | 1 | 2 | 11 |
| 1996 | 1 | 3 | 0 | 0 | 1 | 1 | 2 | 8 |
| 1997 | 2 | 3 | 0 | 0 | 1 | 2 | 2 | 10 |
| 1998 | 2 | 3 | 0 | 0 | 1 | 1 | 2 | 9 |
| 1999 | 4 | 3 | 0 | 0 | 1 | 1 | 2 | 11 |
| 2000 | 0 | 3 | 0 | 0 | 0 | 1 | 2 | 6 |
| 2001 | 0 | 4 | 0 | 0 | 1 | 1 | 1 | 7 |
| 2002 | 2 | 4 | 0 | 0 | 1 | 1 | 1 | 9 |
| 2003 | 1 | 3 | 0 | 0 | 1 | 1 | 1 | 7 |
| 2004 | 0 | 3 | 0 | 0 | 0 | 1 | 1 | 5 |
| 2005 | 0 | 3 | 0 | 0 | 0 | 1 | 1 | 5 |

Table 40. Projected Net Increase or Decrease in State Revenues from Addition of the Middle Fork Reservoir Scenario, Region 1.

| | Total Increase in Revenues ($000) | Total Increase in Expenditures ($000) | Net Increase or Decrease ($000) |
|---|---|---|---|
| 1981 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 |
| 1988 | 150 | 87 | 63 |
| 1989 | 135 | 74 | 61 |
| 1990 | 14 | 10 | 4 |
| 1991 | 15 | 9 | 6 |
| 1992 | 15 | 8 | 7 |
| 1993 | 15 | 8 | 7 |
| 1994 | 15 | 9 | 6 |
| 1995 | 15 | 11 | 4 |
| 1996 | 16 | 8 | 8 |
| 1997 | 15 | 10 | 5 |
| 1998 | 15 | 9 | 6 |
| 1999 | 15 | 11 | 4 |
| 2000 | 15 | 6 | 9 |
| 2001 | 15 | 7 | 8 |
| 2002 | 15 | 9 | 6 |
| 2003 | 15 | 7 | 8 |
| 2004 | 15 | 5 | 10 |
| 2005 | 15 | 5 | 10 |

Table 41. Projected Increase in State Revenues from Addition of Middle Fork Coal Gasification Scenario, Region 1.

| | Sales & Use Tax | Mineral Highway Fund | Hwy. Tax | Cig-Tab Liq-Beer | Special Dist. Fund | Mineral General Fund | Coal Tax Revenue Acct. | Cap-Facil Revenue Acct. | Water Dev. Acct. | Total Increase in Revenues |
|---|---|---|---|---|---|---|---|---|---|---|
| | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 3,687 | 0 | 402 | 72 | 11 | 0 | 0 | 0 | 0 | 4,172 |
| 1989 | 3,687 | 0 | 396 | 71 | 12 | 0 | 0 | 0 | 0 | 4,166 |
| 1990 | 3,686 | 0 | 401 | 72 | 14 | 0 | 0 | 0 | 0 | 4,173 |
| 1991 | 3,687 | 0 | 399 | 72 | 15 | 0 | 0 | 0 | 0 | 4,173 |
| 1992 | 4,414 | 0 | 447 | 81 | 17 | 0 | 0 | 0 | 0 | 4,959 |
| 1993 | 2,104 | 1,121 | 368 | 66 | 17 | 535 | 2,248 | 1,687 | 1,687 | 9,833 |
| 1994 | 2,104 | 1,121 | 380 | 68 | 17 | 535 | 2,248 | 1,687 | 1,687 | 9,847 |
| 1995 | 2,104 | 1,121 | 373 | 67 | 17 | 535 | 2,248 | 1,687 | 1,687 | 9,839 |
| 1996 | 2,104 | 1,121 | 370 | 66 | 17 | 535 | 2,248 | 1,687 | 1,687 | 9,835 |
| 1997 | 2,104 | 1,121 | 367 | 66 | 17 | 535 | 2,248 | 1,687 | 1,687 | 9,832 |
| 1998 | 2,104 | 1,121 | 366 | 66 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,832 |
| 1999 | 2,104 | 1,121 | 362 | 64 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,826 |
| 2000 | 2,104 | 1,121 | 357 | 64 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,821 |
| 2001 | 2,104 | 1,121 | 354 | 64 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,818 |
| 2002 | 2,104 | 1,121 | 351 | 63 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,814 |
| 2003 | 2,104 | 1,121 | 346 | 62 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,808 |
| 2004 | 2,104 | 1,121 | 343 | 61 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,804 |
| 2005 | 2,104 | 1,121 | 340 | 60 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,800 |

Table 42. Projected Increase in State Expenditures from Addition of the Middle Fork Coal Gasification Scenario, Region 1.

| | Education Transfers | Sales & Use Tax Transfers | Highway Fund | Cigarette and Tobacco | Highway Operating | General Gov't Functions | Highway Construction | Total Expenditures |
|---|---|---|---|---|---|---|---|---|
| | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 1,067 | 1,812 | 63 | 32 | 913 | 1,360 | 0 | 5,247 |
| 1989 | 1,061 | 1,886 | 61 | 31 | 882 | 1,313 | 1 | 5,235 |
| 1990 | 1,097 | 1,964 | 60 | 31 | 879 | 1,308 | 2 | 5,341 |
| 1991 | 1,113 | 1,985 | 59 | 30 | 859 | 1,278 | 1 | 5,325 |
| 1992 | 1,281 | 2,343 | 66 | 34 | 954 | 1,421 | 237 | 6,336 |
| 1993 | 1,158 | 1,280 | 53 | 27 | 757 | 1,127 | 466 | 4,868 |
| 1994 | 1,214 | 1,294 | 53 | 27 | 764 | 1,137 | 466 | 4,955 |
| 1995 | 1,196 | 1,265 | 50 | 26 | 729 | 1,084 | 466 | 4,816 |
| 1996 | 1,190 | 1,261 | 48 | 25 | 702 | 1,045 | 466 | 4,737 |
| 1997 | 1,184 | 1,259 | 47 | 24 | 678 | 1,010 | 466 | 4,668 |
| 1998 | 1,176 | 1,249 | 45 | 24 | 655 | 974 | 466 | 4,589 |
| 1999 | 1,144 | 1,245 | 43 | 23 | 627 | 933 | 466 | 4,481 |
| 2000 | 1,111 | 1,242 | 42 | 22 | 599 | 800 | 466 | 4,282 |
| 2001 | 1,079 | 1,246 | 40 | 21 | 573 | 853 | 466 | 4,278 |
| 2002 | 1,054 | 1,239 | 38 | 20 | 546 | 813 | 466 | 4,176 |
| 2003 | 1,026 | 1,231 | 35 | 20 | 519 | 772 | 466 | 4,069 |
| 2004 | 985 | 1,236 | 34 | 18 | 494 | 735 | 466 | 3,968 |
| 2005 | 962 | 1,237 | 33 | 18 | 470 | 700 | 466 | 3,886 |

Table 43. Projected Net Increase or Decrease in State Revenues from Addition of the Middle Fork Coal Gasification Scenario, Region 1.

| | Total Increase in Revenues ($000) | Total Increase in Expenditures ($000) | Net Increase or Decrease ($000) |
|---|---|---|---|
| 1981 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 |
| 1988 | 4,172 | 5,247 | -1,075 |
| 1989 | 4,166 | 5,235 | -1,069 |
| 1990 | 4,173 | 5,341 | -1,168 |
| 1991 | 4,173 | 5,325 | -1,152 |
| 1992 | 4,959 | 6,336 | -1,377 |
| 1993 | 9,833 | 4,868 | 4,965 |
| 1994 | 9,847 | 4,955 | 4,892 |
| 1995 | 9,839 | 4,816 | 5,023 |
| 1996 | 9,835 | 4,737 | 5,098 |
| 1997 | 9,832 | 4,668 | 5,164 |
| 1998 | 9,832 | 4,589 | 5,243 |
| 1999 | 9,826 | 4,481 | 5,345 |
| 2000 | 9,821 | 4,282 | 5,539 |
| 2001 | 9,818 | 4,278 | 5,540 |
| 2002 | 9,814 | 4,176 | 5,638 |
| 2003 | 9,808 | 4,069 | 5,739 |
| 2004 | 9,804 | 3,968 | 5,836 |
| 2005 | 9,800 | 3,886 | 5,914 |

Table 44. Projected Increase in State Revenues from Addition of the Middle Fork Reservoir and Coal Gasification Scenarios, Region 1.

| | Sales & Use Tax | Mineral Highway Fund | Hwy. Tax | Cig-Tab Liq-Beer | Special Dist. Fund | Mineral General Fund | Coal Tax Revenue Acct. | CAP-FACIL Revenue Acct. | Water Dev. Acct. | Total Increase in Revenues |
|---|---|---|---|---|---|---|---|---|---|---|
| | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 3,830 | 0 | 408 | 73 | 11 | 0 | 0 | 0 | 0 | 4,322 |
| 1989 | 3,817 | 0 | 400 | 72 | 12 | 0 | 0 | 0 | 0 | 4,301 |
| 1990 | 3,799 | 0 | 402 | 72 | 14 | 0 | 0 | 0 | 0 | 4,287 |
| 1991 | 3,701 | 0 | 400 | 72 | 15 | 0 | 0 | 0 | 0 | 4,188 |
| 1992 | 4,428 | 0 | 448 | 81 | 17 | 0 | 0 | 0 | 0 | 4,974 |
| 1993 | 2,118 | 1,121 | 369 | 66 | 17 | 535 | 2,248 | 1,687 | 1,687 | 9,848 |
| 1994 | 2,118 | 1,121 | 381 | 68 | 17 | 535 | 2,248 | 1,687 | 1,687 | 9,862 |
| 1995 | 2,118 | 1,121 | 374 | 68 | 17 | 535 | 2,248 | 1,687 | 1,687 | 9,855 |
| 1996 | 2,118 | 1,121 | 371 | 66 | 17 | 535 | 2,248 | 1,687 | 1,687 | 9,850 |
| 1997 | 2,118 | 1,121 | 368 | 66 | 17 | 535 | 2,248 | 1,687 | 1,687 | 9,847 |
| 1998 | 2,118 | 1,121 | 367 | 66 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,847 |
| 1999 | 2,118 | 1,121 | 363 | 64 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,841 |
| 2000 | 2,118 | 1,121 | 358 | 64 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,836 |
| 2001 | 2,118 | 1,121 | 355 | 64 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,833 |
| 2002 | 2,118 | 1,121 | 352 | 63 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,829 |
| 2003 | 2,118 | 1,121 | 347 | 62 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,823 |
| 2004 | 2,118 | 1,121 | 344 | 61 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,819 |
| 2005 | 2,118 | 1,121 | 341 | 60 | 18 | 535 | 2,248 | 1,687 | 1,687 | 9,815 |

Table 45. Projected Increase in State Expenditures from the Addition of the Middle Fork Reservoir and the Coal Gasification Plant Scenarios, Region 1

| | Education Transfers ($000) | Sales & Use Tax Transfers ($000) | Highway Fund ($000) | Cigarette and Tobacco ($000) | Highway Operating ($000) | General Gov't Functions ($000) | Highway Construction ($000) | Total Expenditures ($000) |
|---|---|---|---|---|---|---|---|---|
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1988 | 1,081 | 1,862 | 64 | 32 | 922 | 1,371 | 2 | 5,334 |
| 1989 | 1,069 | 1,933 | 62 | 31 | 884 | 1,327 | 3 | 5,309 |
| 1990 | 1,099 | 1,967 | 60 | 31 | 880 | 1,310 | 4 | 5,351 |
| 1991 | 1,115 | 1,988 | 59 | 30 | 860 | 1,279 | 3 | 5,334 |
| 1992 | 1,282 | 2,345 | 66 | 34 | 955 | 1,423 | 239 | 6,344 |
| 1993 | 1,158 | 1,283 | 53 | 27 | 758 | 1,129 | 468 | 4,876 |
| 1994 | 1,215 | 1,298 | 53 | 27 | 765 | 1,138 | 468 | 4,964 |
| 1995 | 1,199 | 1,269 | 50 | 26 | 730 | 1,085 | 468 | 4,827 |
| 1996 | 1,191 | 1,264 | 48 | 25 | 703 | 1,046 | 468 | 4,745 |
| 1997 | 1,186 | 1,262 | 47 | 24 | 679 | 1,012 | 468 | 4,678 |
| 1998 | 1,178 | 1,252 | 45 | 24 | 656 | 975 | 468 | 4,598 |
| 1999 | 1,148 | 1,248 | 43 | 23 | 628 | 934 | 468 | 4,492 |
| 2000 | 1,111 | 1,245 | 42 | 22 | 599 | 801 | 468 | 4,288 |
| 2001 | 1,079 | 1,250 | 40 | 21 | 574 | 854 | 467 | 4,285 |
| 2002 | 1,056 | 1,243 | 38 | 20 | 547 | 814 | 467 | 4,185 |
| 2003 | 1,027 | 1,234 | 35 | 20 | 520 | 773 | 467 | 4,076 |
| 2004 | 985 | 1,239 | 34 | 18 | 494 | 736 | 467 | 3,973 |
| 2005 | 962 | 1,240 | 33 | 18 | 470 | 701 | 467 | 3,891 |

Table 46. Projected Net Increase or Decrease in State Revenues from Addition of the Middle Fork Reservoir and Coal Gasification Scenario, Region 1

| | Total Increase in Revenues ($000) | Total Increase in Expenditures ($000) | Net Increase or Decrease ($000) |
|---|---|---|---|
| 1981 | 0 | 0 | 0 |
| 1982 | 0 | 0 | 0 |
| 1983 | 0 | 0 | 0 |
| 1984 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 |
| 1986 | 0 | 0 | 0 |
| 1987 | 0 | 0 | 0 |
| 1988 | 4,322 | 5,334 | -1,012 |
| 1989 | 4,301 | 5,309 | -1,008 |
| 1990 | 4,287 | 5,351 | -1,064 |
| 1991 | 4,188 | 5,334 | -1,146 |
| 1992 | 4,974 | 6,344 | -1,370 |
| 1993 | 9,848 | 4,876 | 4,972 |
| 1994 | 9,862 | 4,964 | 4,898 |
| 1995 | 9,855 | 4,827 | 5,028 |
| 1996 | 9,850 | 4,745 | 5,105 |
| 1997 | 9,847 | 4,678 | 5,169 |
| 1998 | 9,847 | 4,598 | 5,249 |
| 1999 | 9,841 | 4,492 | 5,349 |
| 2000 | 9,836 | 4,288 | 5,548 |
| 2001 | 9,833 | 4,285 | 5,548 |
| 2002 | 9,829 | 4,185 | 5,644 |
| 2003 | 9,823 | 4,076 | 5,747 |
| 2004 | 9,819 | 3,973 | 5,846 |
| 2005 | 9,815 | 3,891 | 5,924 |

Table 47. Projected Net Increase or Decrease in Fiscal Balance from Addition of the Middle Fork Reservoir Scenario, Region 1

| | State | County | | | | | Municipalities within Region |
|---|---|---|---|---|---|---|---|
| | | Campbell | Crook | Johnson | Sheridan | Weston | |
| | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | 4 | 1 | 1 | 31 | 2 | 0 | -5 |
| 1995 | 4 | 1 | 0 | 0 | 0 | 0 | -1 |
| 2000 | 9 | 0 | 0 | 0 | 1 | 0 | -3 |
| 2005 | 10 | 0 | 0 | 1 | 1 | 0 | -1 |

Table 48. Projected Net Increase or Decrease in Fiscal Balance from Addition of the Middle Fork Coal Gasification Scenario, Region 1

| | State | County | | | | | Municipalities within Region |
|---|---|---|---|---|---|---|---|
| | | Campbell | Crook | Johnson | Sheridan | Weston | |
| | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | -1,168 | 1,043 | 22 | 54 | 55 | 33 | 587 |
| 1995 | 5,023 | 765 | 12 | 14 | 35 | 15 | 768 |
| 2000 | 5,539 | 765 | 11 | 13 | 37 | 17 | 670 |
| 2005 | 5,914 | 797 | 12 | 14 | 35 | 14 | 325 |

Table 49. Projected Net Increase or Decrease in Fiscal Balance from Addition of the Middle Fork Reservoir and Coal Gasification Scenario, Region 1

| | State | County | | | | | Municipalities within Regions |
|---|---|---|---|---|---|---|---|
| | | Campbell | Crook | Johnson | Sheridan | Weston | |
| | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) | ($000) |
| 1981 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1985 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1990 | -1,064 | 1,104 | 23 | 25 | 57 | 33 | 582 |
| 1995 | 5,028 | 767 | 12 | 13 | 35 | 15 | 767 |
| 2000 | 5,548 | 765 | 11 | 13 | 38 | 17 | 667 |
| 2005 | 5,924 | 797 | 12 | 15 | 36 | 14 | 324 |

# CHAPTER VI

## Summary and Conclusions

While the role of states in the development of water resources has grown considerably during the last few years, few attempts have been directed towards assessing the secondary benefits and costs of alternative water projects from the perspective of an individual state. This paucity of research is partially explained by the fact that alternative water projects traditionally have been evaluated on the basis of national economic efficiency, and that socioeconomic impact assessment approaches and methods for assessing water projects have not been readily available. This study represents an attempt to examine whether impact assessment approaches and methods can be used to identify and quantify the secondary effects and distributional effects of several alternative water projects in Wyoming.

Overall, our impact assessment of alternative Wyoming water projects reveals that both the secondary impacts on business activity and employment by sector and the distribution of the total fiscal impacts on municipal, county and state government can be assessed with the WEDAM model. The secondary effects and distribution effects of the alternative water projects for the Westside and Middle Fork are dissimilar in many ways. For example, development of Westside water for irrigation has substantially larger business activity, income and employment multipliers associated with it than those for development of Middle Fork water for irrigation. The fiscal impact of developing Westside water for irrigation is projected to be negative for state government, while this effect for state government is projected to be positive for developing Middle Fork water for irrigation. In many ways, these results underscore the uniqueness of each water development alternative. An yet,

irrigation projects have qualities in common with one another. The fiscal impacts of the three proposed irrigation projects examined in this study each are projected to be positive for affected counties and negative for affected municipalities. The economic and fiscal impacts of water development are contingent upon numerous endogenous and exogenous factors such as the nature and strength of sector interrelationships in local economies, state and local tax policies, national market forces, and the capital intensity of businesses using water. With such inherent differences in the economic and fiscal impacts associated with alternative water projects, questions of whether proposed water developments would generate fiscal benefits (net revenue) for local and state government should be raised. More extensive analyses than the one presented here may be required to check the accuracy of our fiscal projections. The results of our analysis suggest that only one of the four development scenarios examined would generate much of any net revenue for the public sector, under Wyoming's present tax laws.

If the approaches and methods used to assess the expected impacts of alternative water development projects in the study were chosen for more extensive use in Wyoming, more research would be warranted to determine how they could be improved to more accurately and thoroughly assess the most important socioeconomic effects of water development. These approaches and methods were developed to make realistic projections of the impacts of large-scale energy developments. Therefore, additional research could better orient impact assessment models for the evaluation of water projects.

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