

# System Load Forecast 2004

**Southern Montana Electric Generation and  
Transmission Cooperative**

**October 2004**



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**SME**  
Southern Montana Electric  
Transmission and Distribution Cooperative, Inc.

# SOUTHERN MONTANA ELECTRIC

GENERATION AND TRANSMISSION COOPERATIVE

Montana 42 Southern

## Load Forecast

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## Section I:

### Opening Comments:

- Introduction:
- Purpose and Need
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  - Other Customer Classes
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- Estimated Growth by Customer Classification
- System Characteristics:
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# SOUTHERN MONTANA ELECTRIC GENERATION AND TRANSMISSION COOPERATIVE

Montana 42 Southern  
Load Forecast

## Opening Comments

### 1.0 Introduction:

Southern Montana Electric Generation and Transmission Cooperative, Inc. (Southern Montana), headquartered in Billings, Montana, is an "all requirements" provider of wholesale electricity and related services to 5 electric distribution cooperatives and 1 municipal utility. The five electric distribution cooperatives serve approximately 65,000 Montanans, and the City of Great Falls has an estimated population of approximately 57,000 people. Southern Montana's service area encompasses 22 counties in 2 states (Montana, and Wyoming respectively). The geographic area served by the members of Southern Montana Electric G&T is approximately 58,000 square miles.

The member systems of Southern Montana Electric have provided affordable, reliable and quality electrical energy and related services to their member/owners in central and south central Montana for over 60 years. The distribution cooperative member systems of Southern Montana are as follows:

#### Cooperative Member Systems of Southern Montana

Montana 19 Stillwater	Beartooth Electric Cooperative
Montana 15 Fergus	Fergus Electric Cooperative
Montana 17 Rosebud	Mid-Yellowstone Electric Cooperative
Montana 33 Custer	Tongue River Electric Cooperative
Montana 09 Yellowstone	Yellowstone Valley Electric Cooperative

#### Municipal Utility Member System

Electric City Power	City of Great Falls, Montana
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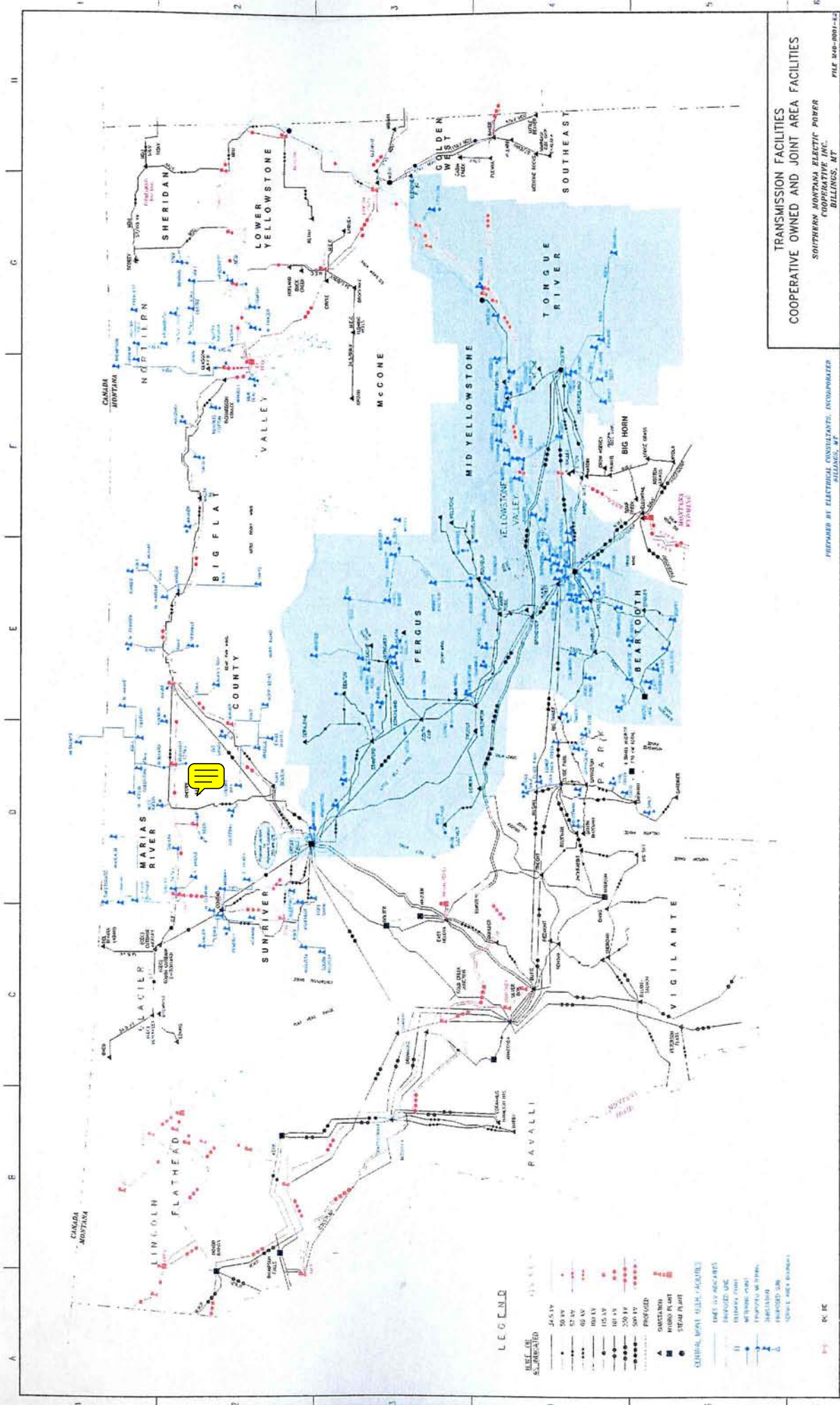
#### Mission Statement:

The mission of Southern Montana Electric Generation and Transmission Cooperative is to provide a reliable, economical source of electric energy for our consumer owners for the long term.

#### Service Area:

The area served by Southern Montana is depicted on the following maps of Montana. The first map shows the area served by southern Montana as a single entity, and the second map shows the same area with each individual member systems in a different color.

INTRODUCTION



**LEGEND**

**LINE TYPE**

•	24-35 KV
—	36 KV
—	48 KV
—	60 KV
—	80 KV
—	115 KV
—	150 KV
—	200 KV
—	300 KV
—	500 KV

**PLANT TYPES**

- ▲ DENSITY
- HYDRO PLANT
- STEAM PLANT

**OTHER MARKINGS**

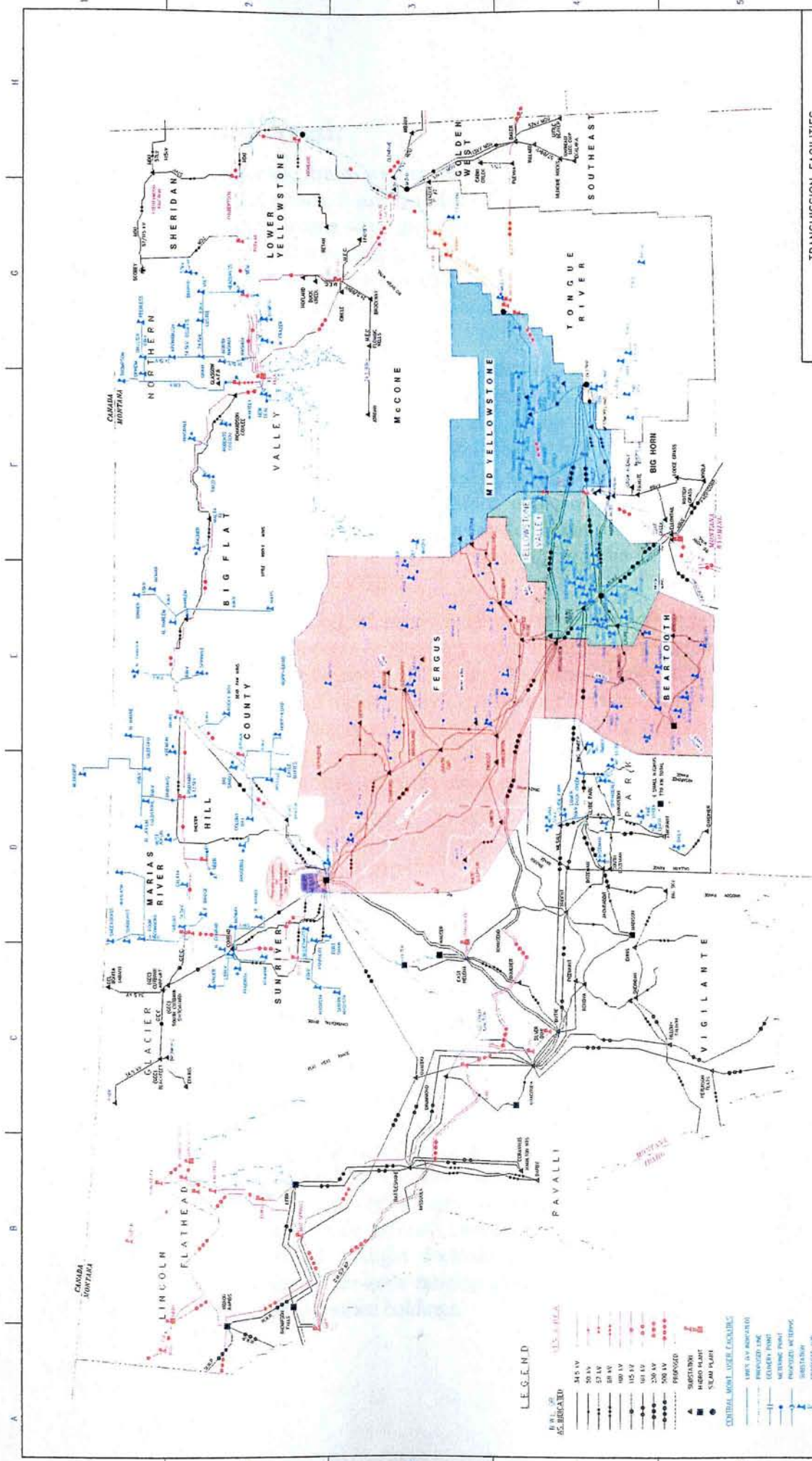
- BOUNDARY BETWEEN JURISDICTIONS
- TIMES DAY RECEIVES
- FINISHED LINE
- UNFINISHED LINE
- WITH PENDING CONTRACTS
- PROPOSED CONTRACTS
- REVISIONS
- OWNERS' PROPERTY

TRANSMISSION FACILITIES  
 COOPERATIVE OWNED AND JOINT AREA FACILITIES

**SOUTHERN MONTANA ELECTRIC POWER  
 COOPERATIVE INC.  
 BILLINGS, MT**

PREPARED BY ELECTRICAL CONSULTANTS, INCORPORATED  
 BILLINGS, MT





- LEGEND**
- R.R. 220**  
**AS-BE-CARD**
- 115 KV
  - 50 KV
  - 23 KV
  - 15 KV
  - 10 KV
  - 5 KV
  - 3 KV
  - 2 KV
  - 1 KV
- PROPOSED**
- 115 KV
  - 50 KV
  - 23 KV
  - 15 KV
  - 10 KV
  - 5 KV
  - 3 KV
  - 2 KV
  - 1 KV
- STATION**
- HYDRO PLANT
  - STEAM PLANT
- CENTRAL MONT. LOUSE COUNCILS**
- LINE, AS-BE-CARD
  - PROPOSED LINE
  - COHEN PARK
  - NEVINS PARK
  - PROPOSED ACROSS
  - STATION
  - STEAM PLANT
  - HYDRO PLANT

**TRANSMISSION FACILITIES  
 COOPERATIVE OWNED AND JOINT AREA FACILITIES**

SOUTHERN MONTANA ELECTRIC POWER  
 COOPERATIVE INC.  
 BILLINGS, MT.

PREPARED BY ELECTRICAL CONSULTANTS, INCORPORATED  
 BILLINGS, MT.

## **1.1 Purpose and Need:**

To appropriately plan for the future wholesale electric energy and related services needs of the member systems it serves, Southern Montana has prepared this forecast of the demand and energy requirements of its member systems. This Load Forecast has been prepared using standard load forecasting techniques that have been employed by electric cooperatives for this purpose for many years. This Load Forecast represents a collaborative effort of the aforementioned electric distribution member systems and Southern Montana.

Southern Montana is an "all requirements" provider of wholesale electricity and related services to 5 electric distribution cooperatives and 1 municipal utility. The primary focus of this Load Forecast will be to estimate the demand and energy needs of the five rural electric cooperative systems. Although the City of Great Falls is a member of Southern Montana and their electric energy and needs will be considered as an attribute of Southern Montana's total requirement for wholesale power supply acquisition purposes, the supply needs of the City have been evaluated separately as the City will have a different source for long term financing and not included in any forthcoming request for financing from the United States Department of Agriculture Rural Utilities Service (RUS).

Southern Montana's total electric load requirement represents the combined system needs of the five electric distribution cooperative members and one municipal utility. For the purpose of this Load Forecast the load requirement of Southern Montana's cooperative member systems were refined into the traditional major utility classification for customers: residential (which includes both urban and farm customers), commercial and industrial - which range from small retail to heavy industrial customers. There are also several minor contributors to system load, including irrigation, water treatment facilities, street and highway lighting, public schools and municipal buildings.

## **1.2 Estimated Electric Load:**

A summary of the estimated projected load requirements of the aforementioned consumer classifications is as follows.

### **1.2.1 Residential:**

Historically, residential loads have accounted for approximately 67 percent of projected total sales made by Southern Montana to the member cooperatives. The number of residential customers served by the member systems of Southern Montana has been increasing at an annual rate of approximately 1.75 percent over the last 10 years, with most of this growth coming from residential subdivisions being developed on the peripheral edges of Billings, Montana in Yellowstone Valley Electric Cooperative's service territory. The rate of increase in residential customers ranges from less than one half of one percent (.5%) in Mid Yellowstone Electric Cooperative's service territory, to approximately four percent (4%) in Yellowstone Valley Electric Cooperative's service territory. Despite an increase in the residential customers, Southern Montana experienced a slight decrease in number of "farm customers". This reduction is due to a number of reasons ranging from farm economics to consolidation of smaller operations into larger corporate holdings.

Southern Montana projects a system increase in residential customers of approximately 2.5 percent annually over the next 20 years. The primary contributing factor to Southern Montana's increase in residential customers will be the continued expansion of the City of Billings into the area served by Yellowstone Valley Electric Cooperative. Yellowstone Valley Electric Cooperative has had a compounded annual rate of growth in energy sales to its residential customers of approximately 5.06% over the course of the past 32 years. As Yellowstone represented approximately 45% of Southern Montana's total sales in 2003, its rate of growth will have a significant impact on Southern Montana's residential energy requirement. Southern Montana also anticipates additional growth in the residential customer segment of the member systems it serves in some of the more attractive rural locations in close proximity to Billings, particularly those areas offering recreational and "quality" lifestyle opportunities. As a general rule, where there is a combination of "trees, scenery and water" there will be growth – if these qualities are not present there is little or no expectations for growth.

The amount of electricity used on a per residential customer basis is expected to remain relatively constant to increasing slightly over the course of the next 20 years. Factors influencing individual residential customer use of electricity are the following:

- Steady to a moderate decrease in electricity use for household heating on per customer basis due to more efficient heating systems.
- Moderate increase in electricity use reflecting the use of air conditioning
- Steady to a moderate decrease in electricity use for water heating due to more efficient water heaters.
- More efficient refrigerators and freezers
- More efficient lighting
- Increased electricity use by "farm customers" resulting from an increase in farm size and enhanced mechanization.

As already mentioned, Southern Montana predicts that the average annual energy use per residential customer at the G&T level will remain constant to increasing slightly over the course of the next 20 years. This increase will primarily be the result of an increase in the use of air conditioning. Total electricity sales to residential customers is expected to increase 3.3% percent per year over the next 10 years primarily as a result of significant residential development in the area surrounding Billings and a number of projected subdivisions that will be served by Beartooth Electric in the Clark, Wyoming area. The Wyoming subdivisions will be primarily full time residential, although there may be an occasional seasonal dwelling. Once the planned developments are built, Southern Montana anticipates the surge in growth will subside and future load growth will return to more traditional levels. Based on current projections, most of the anticipated growth is expected to occur in the period 2004-2014.

In addition to traditional load development, Southern Montana anticipates a continued increase in the use of air conditioning and a reduction in the number of homes selecting natural gas as a home heating fuel. The recent increase in the price of natural gas has seriously eroded the economic advantage natural gas previously enjoyed as the fuel of choice for home heating purposes. In fact, if the rapid increase in the price of natural gas continues as a result of the wide spread use of natural gas in combined cycle and simple cycle gas turbines, while electric prices remain stable or increase at a more gradual pace, we may see an increase in the number of homes using electric heat. This increase in the use of electric heat would most likely come in

the form of high efficiency electric heat pumps offering the added advantage of air conditioning.

Even though Southern Montana anticipates sustainable growth in the residential sector of member system loads, Southern Montana foresees a slight shift in the “mix” of its existing customer base. For the period 1971 through 2003 residential load accounted for approximately 67% of Southern Montana’s supply requirements. Due to increased industrial activity currently under way in Fergus Electric’s service territory and planned methane gas development in Tongue River Electric’s service territory, residential customer load is expected to decline to approximately 56% of Southern Montana’s service obligation for the period 2003-2018, with the bulk of that shift occurring in the period 2003-2008.

### **1.2.2 Commercial and Industrial:**

Southern Montana partitions its “commercial and industrial customers” into small commercial and large commercial customer classifications. The small commercial customer classification includes restaurants, retail stores, “cottage industries”, and small manufacturing facilities. Large commercial customers are mostly “larger” manufacturing facilities, industrial sites and facilities with sizable motor loads such as compressor stations. The number of small commercial and industrial customers is expected to increase by 1.5 percent per year over the next 20 years. This increase would be in line with projected growth in the region for petroleum product extraction and the continued growth in the development of the methane gas wells in southeastern Montana in Tongue River’s service area.

An additional illustration of the impact of the aforementioned trend in natural gas prices is occurring in Beartooth Electric’s service territory and will put upward pressure on Beartooth’s commercial energy requirements. Beartooth has been notified by one of its small commercial customers in the Clark, Wyoming area of the customer’s plans to discontinue using natural gas pumped from their wells to “self generate” electricity to power an existing compressor station. The owner/operator of this facility has determined that it is far more economical to sell the gas previously used to self generate in the gas market, and buy electric energy for the compressor station from Beartooth Electric. Long term projections of natural gas prices show no signs of the price of natural gas retreating to the point it can seriously be considered as an economic choice for fuel in the generation of base load electric production.

Although Southern Montana does not expect a dramatic increase in the consumption rates of small commercial and industrial users of electricity on a per customer basis, Southern Montana does anticipate a significant increase in the overall requirements of these customer classes. This increase will be the result of two large pumping stations on Fergus Electric’s system and the expected growth in the Methane gas industry in Tongue River Electric’s service area located in close proximity to the Powder River Basin (PRB) coal fields. Fergus Electric has received a deposit to cover the cost to construct facilities necessary to serve approximately 16,000 horsepower of new load by the end of first quarter 2005, with plans for a second increment of pumping load slated to follow shortly thereafter. The impact of the installation of this large pumping load, in concert with ongoing methane gas development, represent a projected increase in sales to the large commercial segment of Southern Montana’s load base of approximately 40% over the 2003-2008 time frame.

Tongue River Electric Cooperative projects the development of the Methane gas industry to result in an additional large commercial load requirement of 3,000 horsepower in 2007, 3,000 horsepower in 2008 and 4,000 horsepower in 2009. The Methane gas load development in Montana reflects the established trend in other regions such as northern Wyoming. Southern Montana estimates the total increase in the load requirements of Tongue River's large industrial class to be approximately 10,000 horsepower, or an increase to Southern Montana of approximately 25% over projected 2004 requirements. These projections are rather conservative estimates when compared to the actual growth and future projections made by neighboring utilities experiencing similar industrial activity. At one point Powder River Energy just across the border in Wyoming was predicting its Methane gas load at approximately 300 mW - thirty -times greater than Tongue River's projection.

The aforementioned increases in the load requirements of large industrial consumers will contribute substantially to the increase in Southern Montana's wholesale power requirements during the period 2004 through 2013. If it were not for the increased obligation fostered by these two predictable activities, Southern Montana would anticipate a more modest growth rate of approximately 3% over the 2003-2009 timeframe.

If the efforts by local governmental agencies such as the City of Great Falls are successful in encouraging industrial development and strong regional economic growth, the projected increases in the load requirements of the member systems for small commercial and industrial customers would need to be adjusted accordingly. For the purpose of this study, a more conservative approach was taken in projecting the future load requirements of the small commercial and industrial customer sector. In order for a load to be considered in the context of this study there must be considerable assurance that the load is likely to develop before it was included in the forecast algorithm.

For the period 2003-2018 Southern Montana anticipates a 1.7 % increase in the wholesale energy requirements of the member systems small commercial loads. Large industrial customer load is expected to increase approximately 40% over the 2003-2008 timeframe, and approximately 15% when the window of analysis is expanded to 2003-2016. A review of the period 2008-2013 indicates that by 2009 the "requirement spike" will have passed and growth moderates to 2.66%. For the period 2013-2018 load growth will have "flattened" to a rate significantly less than 1%.

### **1.2.3 Other Classes:**

Southern Montana expects electricity use for irrigation, street lighting, and public authorities to remain relatively flat over the next 20 years. This sector presently accounts for about approximately 6.75 percent of Southern Montana's total supply requirement. For the period 2003-2018 the combined requirements of the irrigation and "others" is expected to decline to approximately 3.9%. This decline is not a reflection of an actual decrease in the needs of this important segment of our member system requirements, but an indication in the shift of member system load to higher level of industrial need.

### **1.3 Forecasting Parameters:**

Montana has an extensive history of “boom and bust” resource development and Southern Montana has made a conscious effort to conservatively estimate the impact of the recent flurry of activity in the oil and gas industry on the future wholesale energy requirements of its member systems. It could be said that Southern Montana is in an area “prime” for development and Southern Montana should be more “optimistic” in forecasting load requirements and the need for resource development. However, the load forecast that serves as the basis for this AES may represent the underpinning for the construction of member owned generation. With a clear focus on avoiding the serious repercussions of “over building”, Southern Montana has consciously resisted the temptations to be caught up in “Chamber of Commerce enthusiasm” and has taken a more conservative approach to load forecasting. Unless there was a valid reason to depart from the load growth patterns established over the past 32 years, historic usage served as the primary tool for load forecasting.

### **1.4 Natural Gas Supply, Demand and Pricing:**

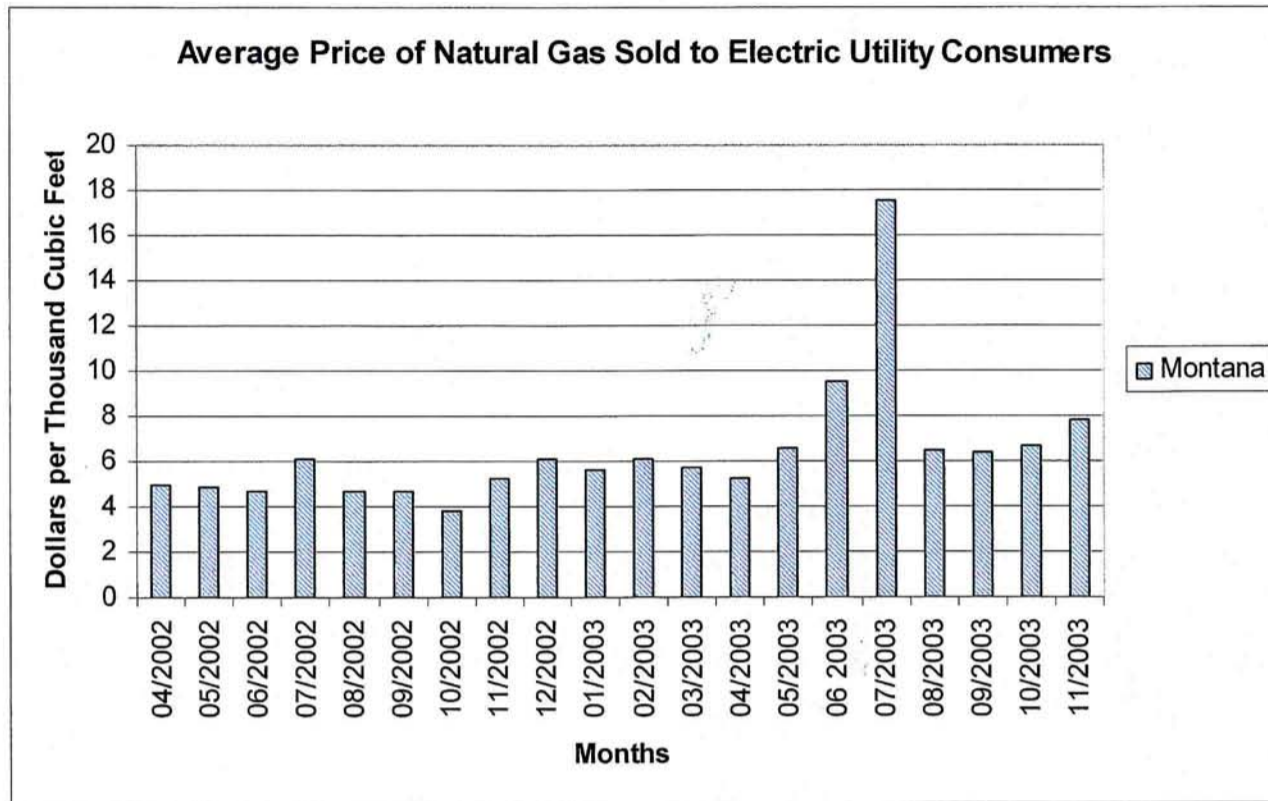
In the early 1970’s the issue of energy supply, demand and pricing was on the forefront of everyone’s minds. There were long lines at the gas pump, the need for “gas guzzling” automobiles was questioned, thermostats were lowered, and what fuel should America turn to for heating purposes was a topic of major discussion. This heightened level of attention on the use of natural gas had a number of positive results on building standards and seemed to indicate that there would be a concerted effort to extend the time this most important resource could be turned to as a quality heating fuel of choice. The 1970’s national “energy crisis” drew needed attention to the fact that the use of natural gas and supply were interrelated. In Montana, sweaters came out to the closet and “conservation” was now important.

Unfortunately, this concern was short lived and in the early 1990’s as the Pacific Northwest was faced with a shortage of another most important commodity – electricity, the conservation lessons of the 1970’s were cast aside and natural gas was called upon to serve double duty. It would continue to play a major role as a heating fuel of choice for homes, commercial and business establishments, and become the premier fuel for new electric generation. Virtually all new generation built in the region would be in the form of combined or simple cycle gas turbines. Easy to locate, economical, “environmentally” friendly, and popular, natural gas fired generation was “on a roll”.

From an energy supply perspective, it appears the region has taken the “path of least resistance” and placed a significant share of its contemporary energy production future in the hands of the natural gas industry. Rather than develop a more comprehensive, balanced and diversified supply portfolio the region decided to benefit of gas fired generation outweighed the risk associated with the inherent volatility in the price of natural gas. Yes, wind power has gained considerable attention and is being developed, but as we shall see later on in this AES, wind generation is not quite there yet as base load generation. For now, natural gas fired generation enjoys “center stage”.

As the region started to see last winter, the increased supply burden placed on natural gas has produced an “unintended consequence”. The price of natural gas is increasing at a troublesome rate affecting not only the price of electricity produced by gas-fired generation, but also the cost to heat homes and businesses. This “unintended consequence” will most likely have the greatest adverse affect on those that can afford it least - “fixed” and low-income families.

**Table 1-1: Typical Wholesale Natural Gas Prices**



### 1.5 Summary: Growth by Customer Classification

In many ways Southern Montana’s estimated growth in the demand and energy requirements of the respective customer classifications reflects the trends that have existing in the cooperative member systems over the past 32 years. However, Southern Montana does foresee a few isolated instances on certain member systems such as Fergus Electric, Beartooth Electric and Tongue River Electric where there will be a departure from the norm with regard to anticipated growth in a particular region, or for a certain customer classification. Sections II through VIII of this load forecast contain the statistical underpinnings of this load forecast. The data in these sections represent the historic and projected requirements of the individual member systems and Southern Montana as a single entity. The opening comments at the beginning of each section were developed by the respective member system General Managers.





## **2.0 System Characteristics:**

There is a wide variety in the service territory characteristics of the respective member systems of Southern Montana. This variation manifest itself in many ways, but of primary interest to the member systems of Southern Montana is how the existing and future economic conditions in the areas they serve will impact demand for the facility services they provide and the need for a reliable, affordable and quality supply of wholesale electric energy and related services. The following information is included to give a general overview of the conditions that will impact the demand for the services provided by the member systems and related wholesale supply needs.

### **Employment and Earnings:**

Over the course of the past several months Montana's seasonally adjusted unemployment rate has been lower than the national average. Montana's unemployment rate in July of 4.3% was 1.2% lower than the nation's average. Average weekly earning in Montana's private section reached \$431.30 in July, setting the over-the-year rate of increase at 2.2%. For the same period the consumer price index in Montana rose 3.0%.

Montana's seasonally-adjusted, non agricultural payroll was up approximately 8,300 jobs or roughly 2.07% in 2004 through July. The largest over-the-year gains were in natural resource development, mining, construction, financial activities, and professional and business services. Current information on Montana's economy can be found by referencing "Montana: Economy at a Glance" on the State's official website. The first bar graph in the following series offers a view of the employment picture in Montana by major employment category for the period 1980 through 2002. The bar graph is titled "Montana Total Employment".

As previously mentioned in earlier sections of this load forecast, Southern Montana is anticipated notable increases in demand for its services from the non agricultural sector. The increase in demand will be the result of the installation of new pumping stations beginning in 2005, conversion of existing compressor stations to electric driven motors, methane gas development, and although no allowances were made directly in the load forecast for Fergus Electric - the expansion of the Bull Mountains coal mine.

### **Agricultural Commodity Prices:**

Montana agriculture has been adversely affected by the severe drought conditions that have plagued Montana's farmers and ranchers for the past several years. In 2004, this sector of Montana's economy continued to struggle with "below normal" installments of moisture and low grain prices. The second bar graph in the following series offers a view of historic and forecasted prices for grain. Although "spotty" some segments of Southern Montana's service territory were able to benefit from reasonably strong cattle prices. The third bar graph in the series offers a view of historic and forecasted cattle prices.

## **Household Expenses and Poverty:**

Montana continues to struggle with low wages and the relatively high cost of living in a northern climate. As explained in other sections of this load forecast and in the Alternative Evaluation Study, increased reliance on natural gas for electric generation has produced a worrisome situation for Montanans as they budget for winter heating expenses. Projected prices for natural gas indicated that the cost for home heating with natural gas is expected to almost double from levels experienced in 2002. The cost of natural gas for residential heating is expected to be over \$9.00/ mcf as compared to approximately \$5.00/ mcf in 2002. This increase in home heating cost will have the greatest impact on fixed and low income families. With many families living at or below the "Poverty Threshold" as depicted in the information received from the U.S. Census Bureau, the bar graph titled "Natural Gas Prices for Montana" implies that it may be a "tough winter" for many less advantaged Montanans. This rather troubling prediction for the price of natural gas may also result in a resurgence in the use of electricity for home heating purposes, provided Southern Montana is able to develop a competitively priced alternative to natural gas.

## **Other Pertinent Information:**

The final series of charts and graphs included with this section offer additional background information on the service territory characteristics of the member systems of Southern Montana. Montana has a significant Native American population. Tongue River Electric provides service to virtually all of the Northern Cheyenne Reservation and is headquartered on the reservation boundary. Yellowstone Valley Electric provides service to a portion Crow Indian reservation along Pryor Creek southwest of Billings.

## **Index to Graphs and Charts Referenced in Section 2.0:**

Graph 1: Montana Total Employment

Graph 2: Montana Wheat Price Per Bushel

Graph 3: Montana Cattle Prices

Graph 4: 2003 Poverty Threshold

Graph 5: Natural Gas Prices for Montana

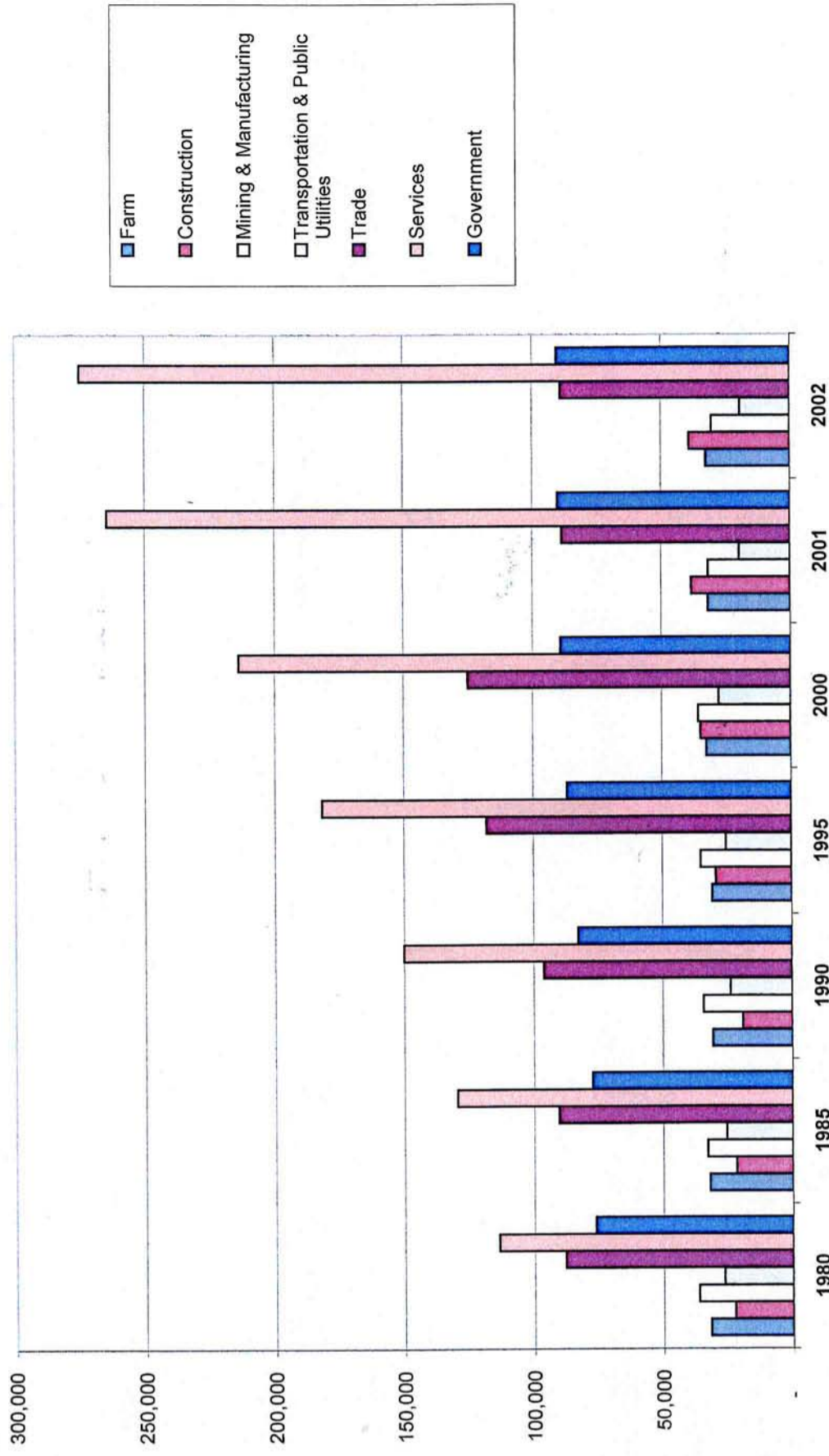
Graph 6: Montana Reservations

Graph 7: Montana American Indian Population

Graph 8: SME Native American Populations

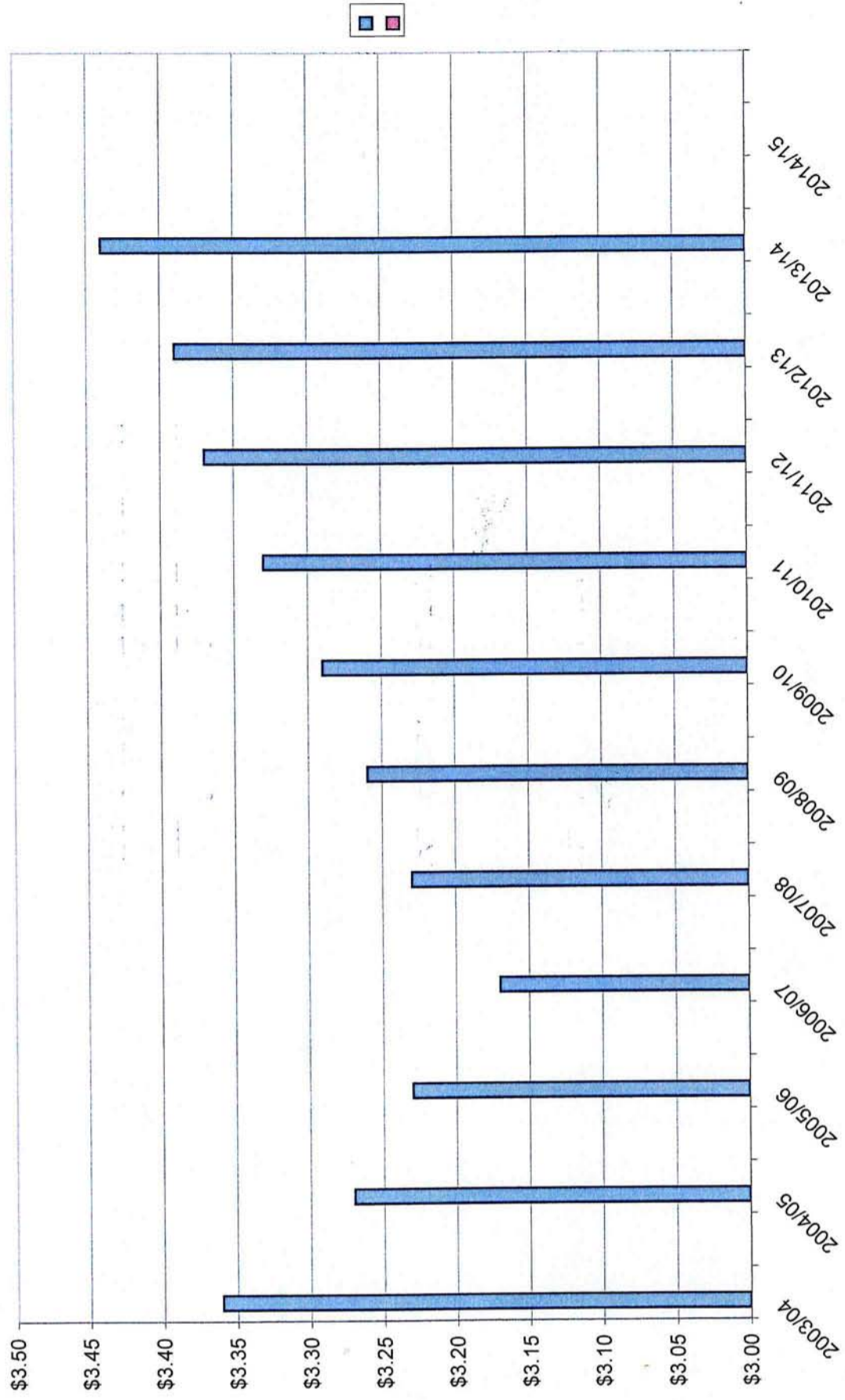
Graph 9: Southern Montana Member Service Area Populations

# MONTANA TOTAL EMPLOYMENT

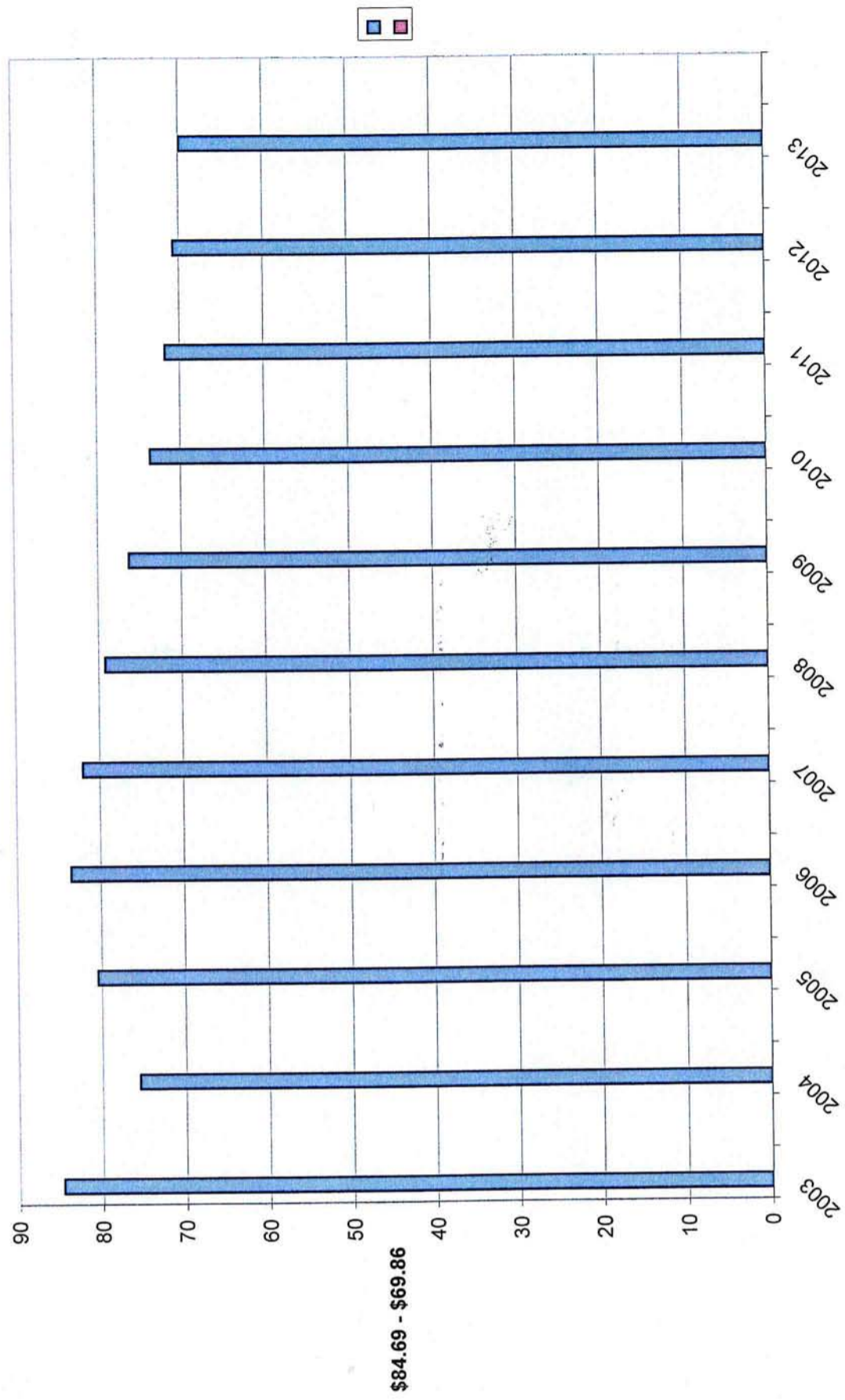


Source: Regional Economic Information System

2003-2014 Wheat Prices (\$/bu)



BEEF PRICES (\$/hundredweight)



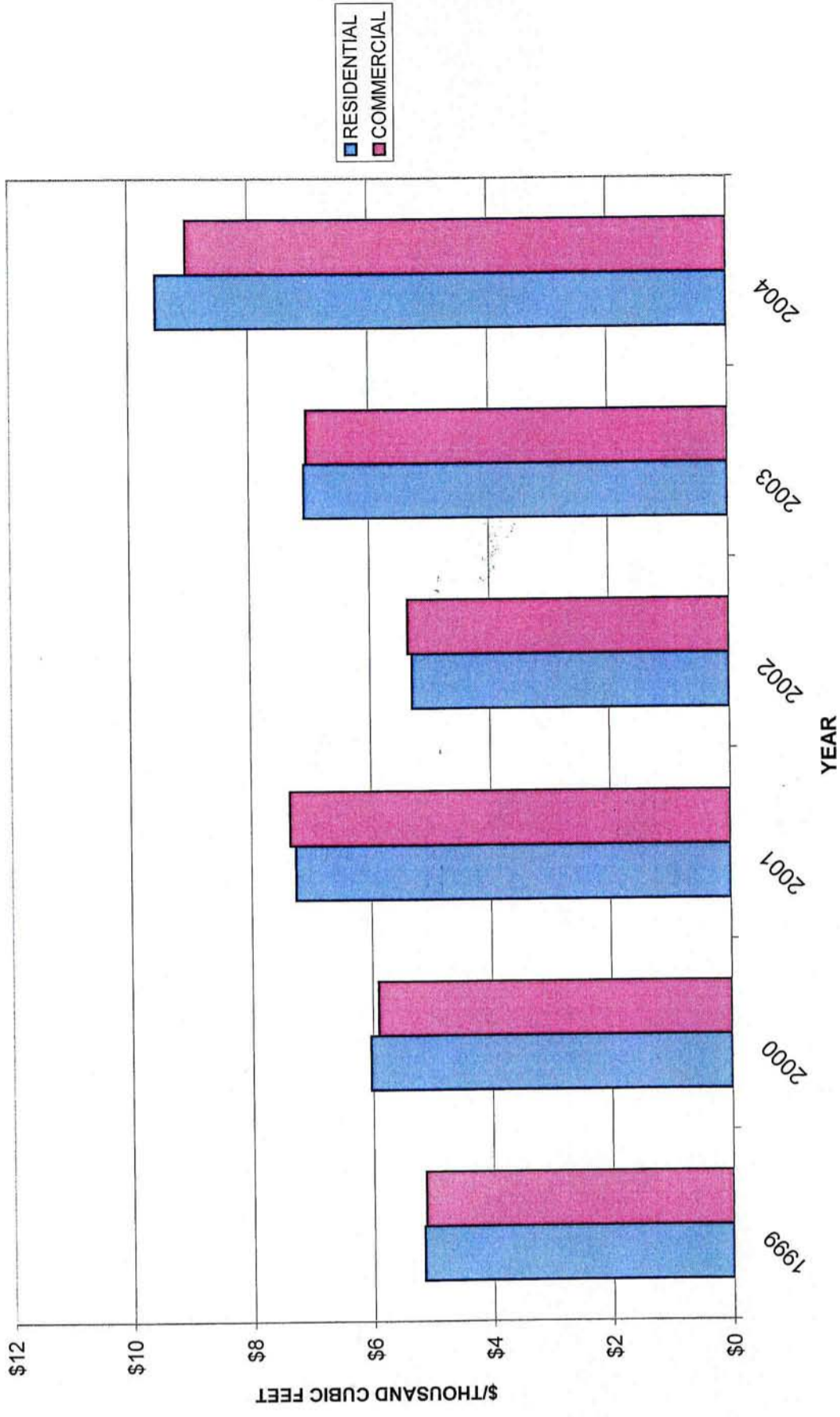
# 2003 Poverty Threshold

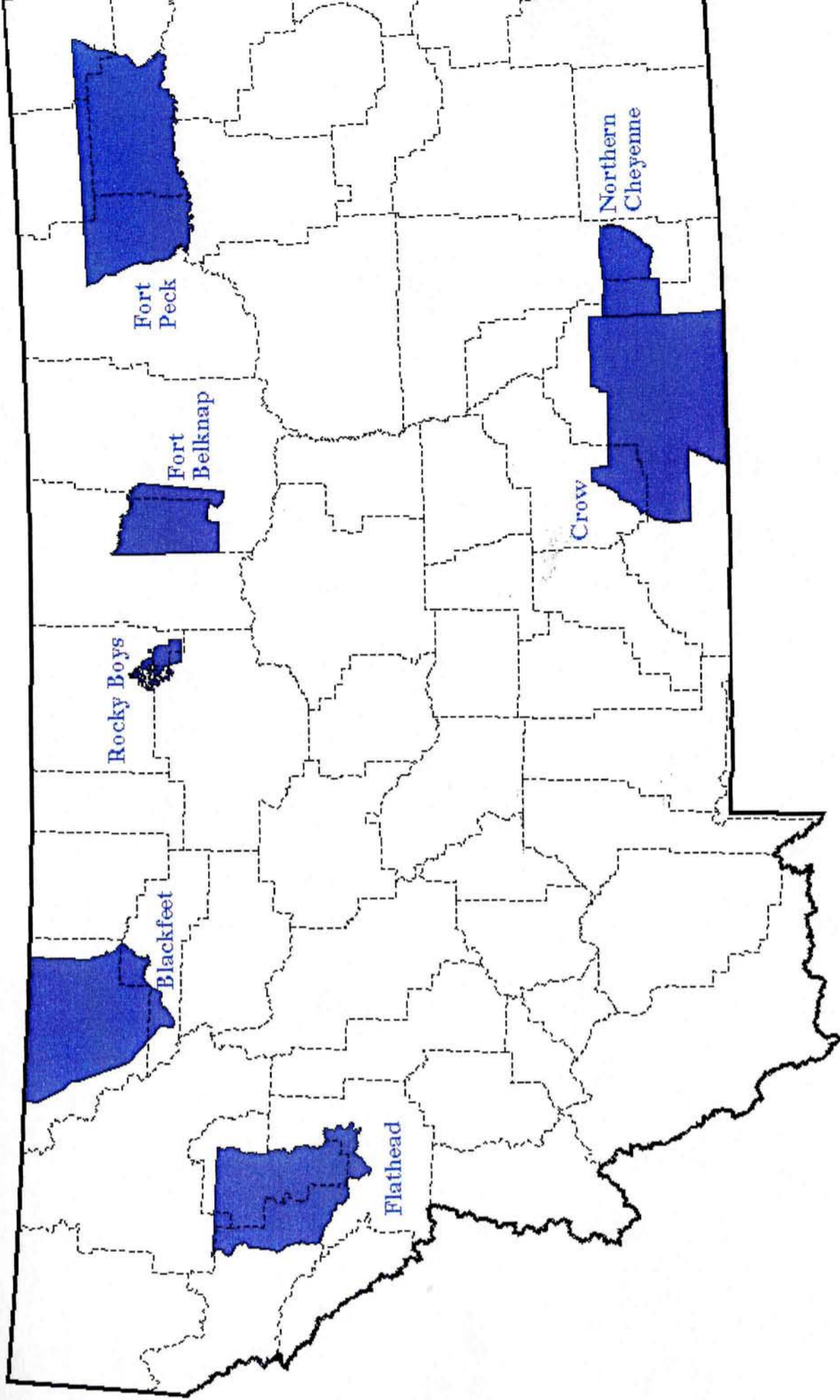
## Size of family unit

One Person (Unrelated individual)	\$9,393
Two Persons	\$12,015
Four Persons	\$18,810

Source: U.S. Census Bureau, revised August 26, 2004

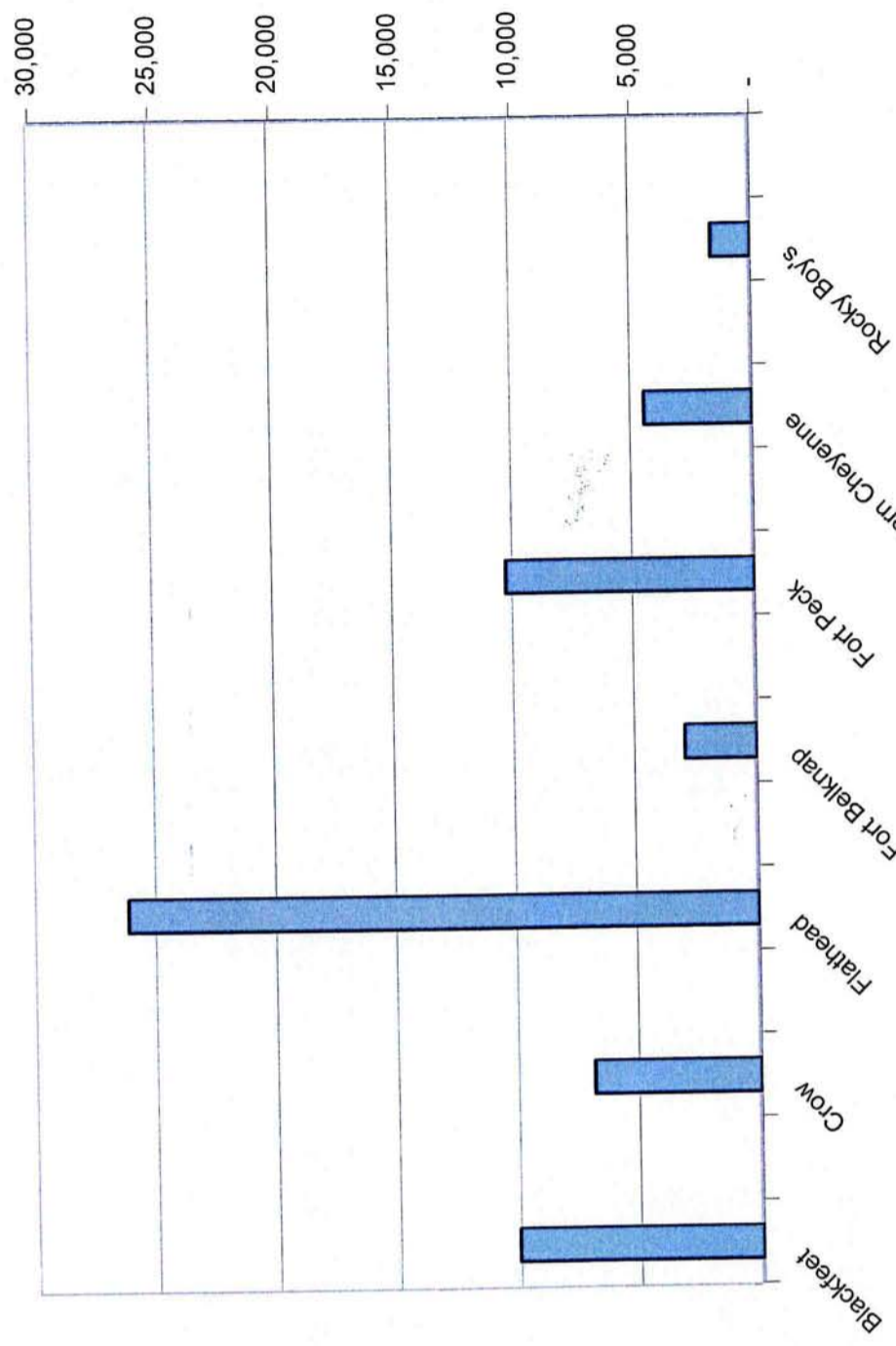
NATURAL GAS PRICES FOR MONTANA





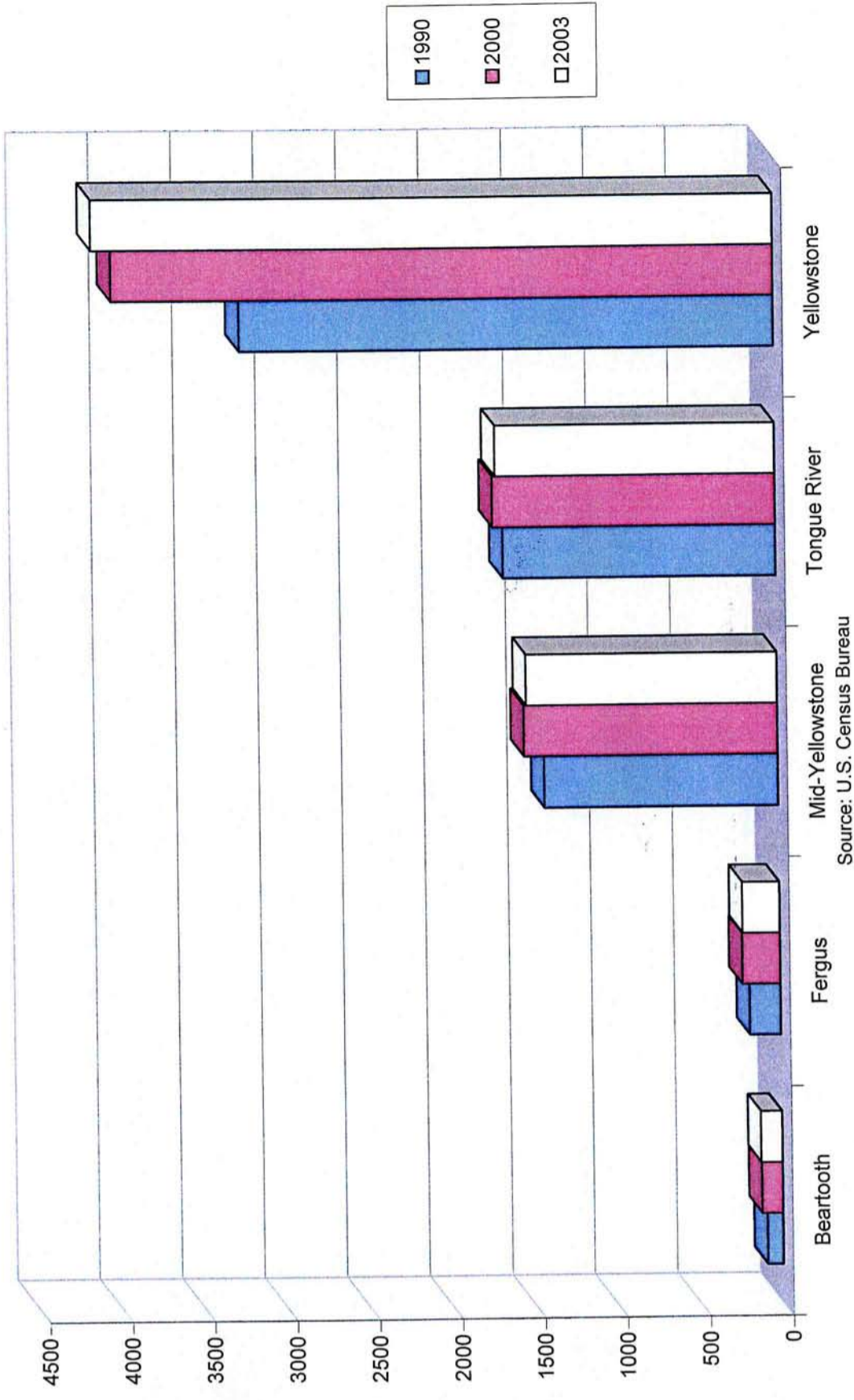


# MONTANA AMERICAN INDIAN POPULATION: 2000

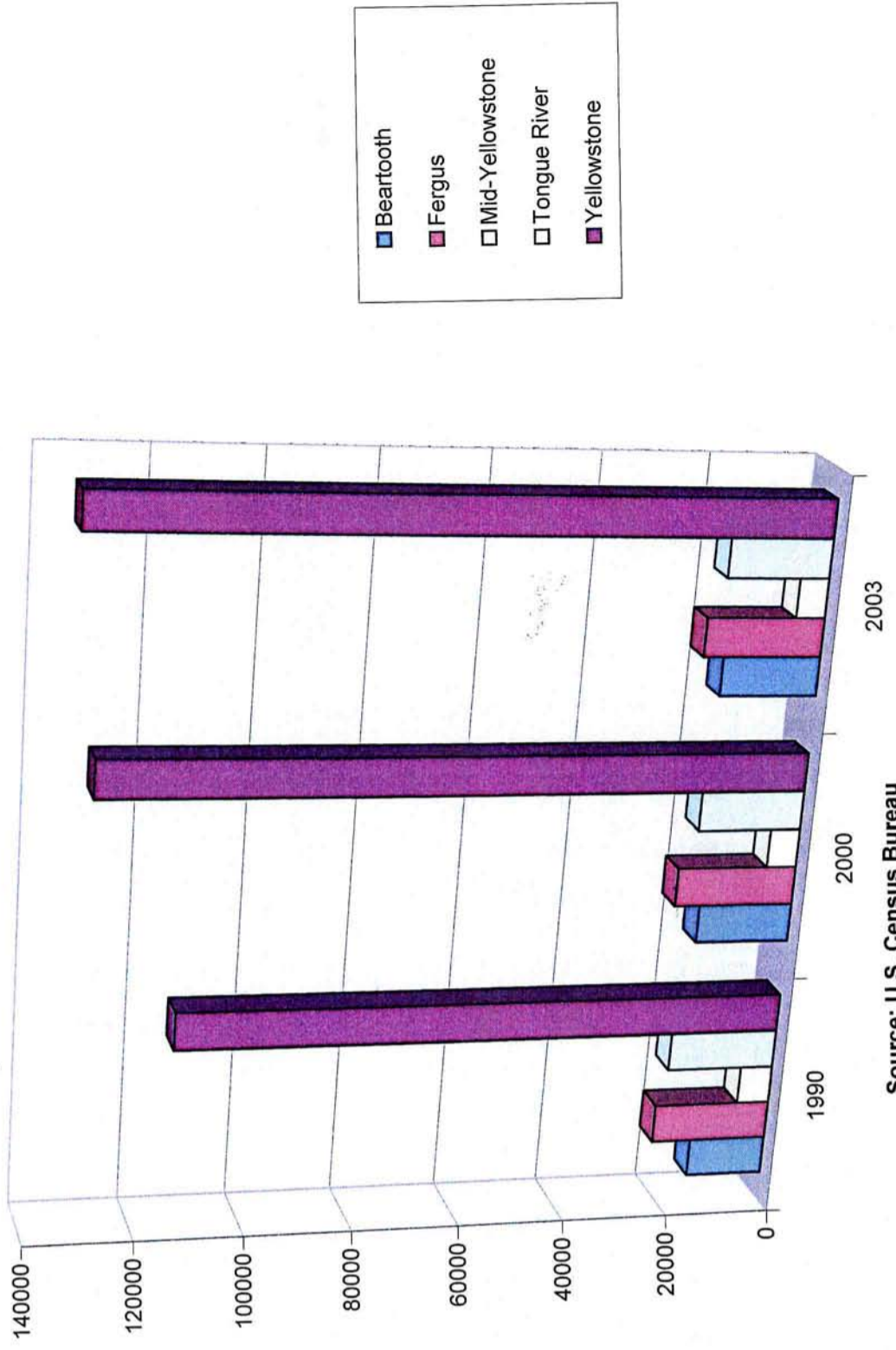


Source: U.S. Census Bureau

# SME Cooperative Member Native American Populations



# Southern Montana Electric Cooperative Member Populations



Source: U.S. Census Bureau

BEARTOOTH

## Section II:

### **Beartooth Electric Cooperative:**

- System Energy Requirements by Consumer Class – Historic 1971-2003
- System Energy Requirements by Consumer Class – Projected 2004-2018
- System Demand Requirements – Historic 1982-2003
- System Demand Requirements – Projected 2004-2018
- Member System Purchases: Demand and Energy – Actual 2001-2004
- Member System Purchases: Demand and Energy – Projected Based on Historic Energy Purchases

# **Beartooth Electric Cooperative**

## **MONTANA 19 STILLWATER NARRATIVE**

Robert P. Walker, General Manager

### **I. SERVICE AREA DESCRIPTION:**

#### **A. LOCATION:**

Beartooth Electric Cooperative, Inc. was incorporated in 1938. It was first energized on February 15, 1941. The Cooperative is headquartered in Red Lodge, Montana. The Cooperative serves Carbon, Stillwater and Sweetgrass Counties in Montana and Park County in Wyoming. The service areas are not likely to change as a result of the "Territorial Integrity Act of 1997" and the certified Wyoming service areas as defined by the Wyoming Public Service Commission. No loads are served that are not beneficiaries of the RE-Act.

#### **B. GEOGRAPHY:**

The service area lies in the Clarks Fork, Rock Creek, Stillwater and Yellowstone River valleys between the Beartooth and Pryor Mountain uplifts. The elevations in these river valleys range from approximately 3,300 feet to approximately 6,500 feet with the southern boundaries largely bounded by rugged mountains. The area between these river valleys consist of dissected upland bench with prominent ridges and escarpments. Exposed formations in the area consist exclusively of rocks of sedimentary origin, i.e., sandstone, shale's, mudstones, and interblended limestone which are of Cretaceous or younger age. Mountain building during late Cretaceous and early Yertiary resulted in the uplift of massive fault blocks that created the Pryor and Beartooth Mountains as well as stresses in sedimentary bedrock that led to lateral displacement along faults.

#### **C. CLIMATE:**

Weather has a large effect on power requirements in our area. An unusually cold winter can effect kilowatt consumption by as much as ten percent of normal. Elevation ranges from 9,000 feet down to 3,000 feet. Therefore the climate can differ quite dramatically from area to area within our service territory. Heating Degree Days can vary significantly throughout our service territory. Precipitation near Red Lodge averages 19.15 inch. Near the Wyoming border and twenty miles east of Red Lodge lies some of Montana's driest country. An interesting comment from the Climatological Summary states that this area has a climate pretty much its own. Being on the northeast slope of the Rockies where winter "Chinook" winds occur a few times every year, the climate may be described as modified continental.

**D. POPULATION:**

From the period between 1990 and 2000 the population of Montana increased by approximately 12.9%. During the same period the populations of Carbon County, Stillwater County, and Sweetgrass County increase by 18.2%, 25.4% and 14.4% respectively. Our G&T manager frequently comments that the growth in Montana is coming anywhere there are trees, rocks and water. His statement is certainly born out by the growth in Beartooth Electric's service territory. Much of our growth has been driven by out of state retirees who come to Montana to retire. This has caused a real boom in residential housing construction in our area without much increase in industry.

**E. ECONOMIC CONDITIONS:**

Employment in Montana grew from 377,000 in 1990 to 455,608 in the year 2000 or an increase of 20.85% as unemployment dropped from 6.0% to 4.9% in 2000. During that same period the counties of Carbon, Stillwater and Sweetgrass experienced increases in employment of 29.49%, 44.47% and 17.87% respectively while at the same time experiencing a slight increase in unemployment rates to 5.2%, 4.7% and 2.5% respectively. During the same period personal income in Montana increased from \$15,516 in 1990 to \$22,518 in the year 2000 for an increase of 45.13%. The personal income in Montana as a percentage of U.S. personal income dropped from 79% in 1990 to 76% in the year 2000. Personal income in Carbon, Stillwater and Sweetgrass counties grew by 67.55%, 70.53% and 33.01% over the same period. Due to the high dependence on agriculture in Sweetgrass county and parts of Stillwater and Carbon counties the growth of personal income in non-farm jobs has been moderated by low prices and increased production costs of agricultural products. Agricultural income can vary significantly from year to year.

With the recent increase in energy prices we are currently being deluged with requests for new services in the Clark Wyoming area for new services in the Badger Basin oil field and for natural gas development on the eastern front of the Beartooth Mountains. We have already received inquiries from Cline Production and Discovery Oil for over 2,000 horsepower to serve existing wells and compressor stations which are currently being powered by natural gas. Windsor energy is in the process of completing cultural surveys on private land in the Clark area to supplement the cultural surveys which have already been completed on BLM land on which they have leases. We also have five new irrigation pivots that have paid for their line extensions in the Clark area which will be in use next season.

**F. TRANSPORTATION:**

Beartooth Electric Cooperative, Inc.'s service territory has limited transportation facilities available. Trucking is the primary source for moving products. Red Lodge, Columbus and Bridger are served by small airports. The service territory also has limited railway service.

**II. FUTURE DEVELOPMENTS:**

As mentioned in paragraph I.E above, with the recent increases in oil and natural gas prices we expect to be adding significant commercial loads within the next four years in the area of Clark Wyoming which will require significant system improvements and additions to our plant to facilitate the increased load.

**III. DEREGULATION:**

When the State of Montana passed its retail access bill in 1997 cooperatives were given the opportunity to opt out of the legislation requiring retail access. Beartooth Electric Cooperative, Inc. has chosen to opt out of retail access until such time as the benefits to our members can be concretely demonstrated. Although there are some thoughts in Montana about redefining retail access in the legislative arena the cooperatives in Montana feel that our "carve out" is not in danger. The impacts of the deregulation of the wholesale power markets are yet to be clearly defined and are thus unknown at this time. However it appears that some form of regional transmission organization will be mandated by FERC the impacts of which are yet to be known. We are quite wary when viewing these developments as we expect that they will result in significant increases in our transmission costs.



**BEARTOOTH ELECTRIC**  
**SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**  
 Page 1 of 2

YEAR	SMALL			LARGE		IRRIGATION	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
	RESIDENTIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL				
1971	17,701	1,455	0	503	19,659	2,879	22,538		
1972	19,531	1,644	0	477	21,652	3,255	24,907		
1973	20,653	1,677	0	614	22,944	2,705	25,649		
1974	20,641	1,707	0	766	23,114	3,072	26,186		
1975	23,052	1,804	228	749	25,833	3,590	29,423		
1976	22,942	1,819	528	910	26,199	4,210	30,409		
1977	24,274	2,133	476	1,340	28,223	4,381	32,604		
1978	27,197	2,372	499	1,206	31,274	4,539	35,813		
1979	29,010	2,788	477	1,532	33,807	3,604	37,411		
1980	27,796	2,786	495	1,516	32,593	4,458	37,051		
1981	27,266	2,942	417	2,224	32,849	4,762	37,611		
1982	30,897	3,296	501	1,480	36,174	1,691	37,865		
1983	30,265	3,166	485	2,422	36,338	4,285	40,623		
1984	32,506	3,241	495	2,470	38,712	5,386	44,098		
1985	32,535	3,128	492	2,329	38,484	4,829	43,313		
1986	29,953	2,675	440	2,240	35,308	3,701	39,009		
1987	29,762	2,490	417	1,647	34,316	4,053	38,369		
1988	31,974	2,483	423	2,031	36,911	4,848	41,759		
1989	34,422	2,587	517	1,716	39,242	4,346	43,588		
1990	32,631	2,324	600	1,828	37,383	5,067	42,450		
1991	35,311	2,444	908	1,470	40,133	4,874	45,007		
1992	33,949	2,224	948	1,347	38,468	4,287	42,755		
1993	37,984	2,488	1,073	1,558	43,103	5,702	48,805		
1994	37,805	2,788	1,016	1,930	43,539	5,496	49,035		
1995	39,598	2,917	1,126	1,544	45,185	5,106	50,291		
1996	43,180	2,848	1,176	2,027	49,231	6,431	55,662		
1997*	42,655	2,850	1,101	1,667	48,273	6,240	54,513		
1998	41,778	2,918	1,090	1,934	47,720	5,485	53,205		
1999	42,623	2,920	1,073	2,200	48,816	6,453	55,269		
2000	45,087	3,331	1,077	2,070	51,565	8,924	60,489		

H I S T O R I C A L

**BEARTOOTH ELECTRIC**  
**SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**  
 Page 2 of 2  
 Total ENERGY REQUIREMENTS

BEARTOOTH ELECTRIC	YEAR	SMALL			LARGE			OTHER	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
		RESIDENTIAL	COMMERCIAL	IRRIGATION	COMMERCIAL	IRRIGATION	OTHER				
HI ST ORY  P R O J E C T E D	2001	44,804	3,393	1,573	1,979	1,979		51,749	6,396	58,145	
	2002	46,766	3,429	1,560	1,979	1,979		53,734	6,641	60,375	
	2003	47,843	3,472	1,560	1,979	1,979		54,854	6,780	61,634	
	2004	48,032	3,500	1,570	1,980	1,980		55,082	7,184	62,267	
	2005	49,358	3,591	1,586	1,980	1,980		56,515	7,371	63,886	
	2006	50,045	3,684	7,430	1,980	1,980		63,140	8,235	71,375	
	2007	56,141	4,691	8,416	1,980	1,980		71,227	9,290	80,517	
	2008	62,409	5,724	9,410	1,980	1,980		79,524	10,372	89,896	
	2009	69,780	6,965	10,597	1,980	1,980		89,323	11,653	100,976	
	2010	71,815	7,146	10,703	1,980	1,980		91,644	11,956	103,600	
	2011	73,905	4,332	10,810	1,980	1,980		91,027	12,267	103,294	
	2012	76,051	7,523	10,919	1,980	1,980		96,473	12,586	109,059	
	2013	78,255	7,719	11,028	1,980	1,980		98,982	12,913	111,895	
	2014	80,517	7,919	11,138	1,980	1,980		101,554	13,249	114,803	
	2015	82,840	8,125	11,249	1,980	1,980		104,194	13,593	117,787	
	2016	85,225	8,336	11,362	1,980	1,980		106,903	13,946	120,849	
	2017	87,686	8,553	11,476	1,980	1,980		109,694	14,309	124,003	
	2018	90,190	8,775	11,590	1,980	1,980		112,535	14,681	127,216	
Growth Rate	1971-2003	3.15%	2.75%	25.80%	4.37%		3.25%	2.57%	3.19%		
Historic	1993-2003	2.33%	3.39%	3.81%	2.42%		2.44%	1.74%	2.36%		
	1998-2003	2.33%	3.53%	7.43%	0.46%		2.82%	4.33%	2.98%		
Growth Rate	2003-2008	5.46%	10.51%	43.24%	0.00%		7.71%	8.87%	7.84%		
Projected	2003-2016	4.54%	6.67%	16.50%	0.00%		5.27%	5.70%	5.32%		
	2008-2013	4.63%	6.16%	3.22%	0.00%		4.47%	4.48%	4.48%		
	2013-2018	2.88%	2.60%	1.00%	0.00%		2.48%	2.60%	2.60%		
Historical Average Compound Growth Rates:		1971-2003	2005-2008	1993-2003	2009-2013		1998-2003	2.98%			
Projected Average Compound Growth Rates:		2005-2008	2009-2013	2014-2018			2.60%	2.60%			

\*Purchases & Losses reflect a change to calendar billing by power supplier

\*\* Adjusted for growth in Wyoming

**BEARTOOTH ELECTRIC**  
**SYSTEM DEMAND REQUIREMENTS BY YEAR (kW)**

**TABLE 2**  
 Page 1 of 2

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total Annual REQUIREMENT
1982	10,199	10,367	7,793	7,281	7,320	6,254	5,944	6,796	6,871	6,202	7,735	9,084	91,846
1983	8,922	8,347	6,799	7,668	6,601	6,908	7,775	7,392	7,248	7,300	6,880	8,911	90,751
1984	13,082	11,108	8,330	7,306	7,206	7,572	7,674	7,190	6,993	6,945	8,351	9,870	101,627
1985	10,095	11,012	8,807	7,141	6,837	7,205	7,199	6,738	6,671	6,971	7,745	10,639	97,060
1986	8,426	9,701	8,830	6,888	6,637	7,048	7,142	7,041	6,924	6,217	9,335	8,384	92,473
1987	8,421	9,040	8,807	7,914	6,491	6,688	6,961	6,568	6,310	6,423	6,817	8,937	89,377
1988	10,279	10,228	8,112	7,789	6,977	7,022	7,228	6,602	6,706	6,247	7,740	8,652	93,582
1989	10,085	12,272	10,723	8,947	6,679	7,052	7,471	6,570	6,797	6,548	7,432	9,935	100,511
1990	11,433	10,405	9,410	8,904	6,965	6,699	7,431	6,810	6,376	6,989	7,615	8,807	97,844
1991	13,707	11,739	9,375	7,993	6,937	6,561	7,070	7,248	6,878	6,328	9,815	9,664	103,315
1992	9,945	9,096	8,021	7,480	7,511	7,009	7,163	6,893	7,527	7,124	7,808	10,218	95,795
1993	12,675	10,316	12,452	9,156	7,201	7,487	8,159	7,070	7,385	7,688	8,788	11,495	109,872
1994	10,854	12,712	11,703	8,810	7,962	7,363	8,253	7,444	7,673	7,634	9,054	10,666	110,128
1995	11,314	11,702	11,471	9,024	8,367	7,733	8,186	7,943	7,891	7,938	10,127	11,579	113,275
1996	11,850	14,974	13,344	11,596	8,133	8,446	8,300	8,554	8,077	7,723	9,731	11,643	122,371
1997*	14,853	13,873	11,744	10,557	7,942	8,386	8,081	8,458	7,714	7,740	10,508	10,691	120,547
1998	13,648	10,677	11,217	9,198	8,336	8,176	8,705	8,794	8,302	7,947	9,630	10,864	115,494
1999	14,894	12,073	10,145	9,797	8,610	8,612	9,447	9,092	8,437	8,069	8,746	10,988	118,910
2000	11,709	11,558	10,684	9,457	8,239	8,959	9,466	9,155	8,941	8,856	11,867	14,034	122,925

H I S T O R I C A L

\*Purchases & Losses reflect a change to calendar billing by power supplier

BEARTOOTH ELECTRIC  
SYSTEM DEMAND REQUIREMENTS BY YEAR (kW)

BEARTOOTH ELECTRIC

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total Annual REQUIREMENT					
2001	11,624	13,191	10,051	9,077	8,601	8,750	9,262	9,498	8,646	9,036	11,000	12,818	121,554					
2002	12,938	13,059	13,301	11,609	9,336	9,345	10,744	9,503	8,680	11,424	11,132	12,181	133,252					
2003	12,804	14,174	13,161	9,166	9,495	9,580	11,554	10,573	9,149	10,448	12,628	13,014	135,746					
2004	13,137	14,543	13,503	9,404	9,742	9,829	11,854	10,848	9,387	10,720	12,956	13,352	139,275					
2005	13,478	14,921	13,854	9,649	9,995	10,085	12,163	11,130	9,631	10,998	13,293	13,700	142,897					
2006 **	14,829	16,309	15,214	10,900	11,255	11,347	13,479	12,419	10,881	12,284	14,639	15,056	158,612					
2007 **	16,464	18,008	16,860	12,433	12,798	12,892	15,079	13,992	12,414	13,854	16,269	16,697	177,761					
2008 **	18,143	19,976	18,548	14,006	14,380	14,477	16,721	15,606	13,987	15,464	17,942	18,381	197,633					
2009 **	18,614	21,995	19,031	14,371	14,754	14,853	17,156	16,012	14,351	15,866	18,409	18,859	204,271					
2010	19,098	22,567	19,525	14,744	15,138	15,240	17,602	16,428	14,724	16,278	18,888	19,350	209,582					
2011	19,595	23,154	20,033	15,127	15,531	15,636	18,060	16,855	15,107	16,702	19,379	19,853	215,031					
2012	20,104	23,756	20,554	15,521	15,935	16,042	18,529	17,293	15,499	17,136	19,882	20,369	220,622					
2013	20,627	24,373	21,088	15,924	16,350	16,460	19,011	17,743	15,902	17,582	20,399	20,898	226,358					
2014	21,163	25,007	21,637	16,338	16,775	16,887	19,505	18,204	16,316	18,039	20,930	21,442	232,243					
2015	21,713	25,657	22,199	16,763	17,211	17,327	20,013	18,678	16,740	18,508	21,474	21,999	238,282					
2016	22,278	26,324	22,776	17,199	17,658	17,777	20,533	19,163	17,175	18,989	22,032	22,571	244,477					
2017	22,857	27,009	23,369	17,646	18,117	18,239	21,067	19,662	17,622	19,483	22,605	23,158	250,834					
2018	23,452	27,711	23,976	18,105	18,589	18,713	21,614	20,173	18,080	19,989	23,193	23,760	257,355					
Historical Average Compound Growth Rates:													1982-2003	1.80%	1993-2003	2.13%	1998-2003	3.28%
Projected Average Compound Growth Rates:													2004-2008	9.62%	2009-2013	2.60%	2014-2018	2.60%

\*Purchases & Losses reflect a change to calendar billing by power supplier

\*\* Adjusted for growth in Wyoming for Oil Development, Compressor Load and Residential Increases

**BEAR TOOTH ELECTRIC**

**SYSTEM PURCHASES: DEMAND (mW) AND ENERGY (mWh) and Total System Load Factor**

**TABLE 3**  
Page 2 of 2

Total Demand  
REQUIREMENTS

	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand
<b>P R O J E C T E D</b>	2004	62,267	51.00%	14	2009	100,976	51.00%	23	2014	114,803	51.00%	26
	2005	63,885	51.00%	14	2010	103,601	51.00%	23	2015	117,787	51.00%	26
	2006	71,375	51.00%	16	2011	106,294	51.00%	24	2016	120,849	51.00%	27
	2007	80,517	51.00%	18	2012	109,058	51.00%	24	2017	123,993	51.00%	28
	2008	89,896	51.00%	20	2013	111,894	51.00%	25	2018	127,217	51.00%	28

FERCUS

## Section III:

### **Fergus Electric Cooperative:**

- System Energy Requirements by Consumer Class – Historic 1971-2003
- System Energy Requirements by Consumer Class – Projected 2004-2018
- System Demand Requirements – Historic 1982-2003
- System Demand Requirements – Projected 2004-2018
- Member System Purchases: Demand and Energy – Actual 2001-2004
- Member System Purchases: Demand and Energy – Projected Based on Historic Energy Purchases

# **FERGUS ELECTRIC COOPERATIVE, INC.**

## **MONTANA 15 FERGUS NARRATIVE**

Scott Sweeney, General Manager

### **INTRODUCTION**

Fergus Electric Cooperative, Inc., is headquartered in Lewistown, Montana. We also have a satellite office in Roundup, Montana for a small warehouse and local crew. The Cooperative's service area lies generally in the center portion of the state with electrical service into all or parts of twelve different counties.

Topography of the area varies from the semiarid plains region typical of central and eastern Montana to the more rugged coniferous forest regions in and around the five mountain ranges within this area. The Missouri river lies along the northern border of Fergus Electric's service area and two tributaries, the Judith and the Musselshell rivers bisect the interior of the service territory. Average annual precipitation varies from 12-18 inches in the mountains and surrounding foothills. Snow has been recorded in every month of the year and winter and spring storms can be locally severe.

### **ECONOMY**

Farming and ranching constitute the basis of the area's economy, with some small industry also contributing. Farms and ranches are predominately single family units although several large Hutterite Colonies do exist. Dry land farming dominates the area, with irrigated lands being confined to those areas near rivers and streams. In the six counties that make up the majority of Fergus's service area, cattle are the predominate type of livestock being raised. Sheep and hog operations also play a lesser roll. Farming consists of mostly small grains such as wheat and barley with some recent interest in canola seed.

Gold mining has played a role in the economy in past years. There are a few small operations but the activity fluctuates according to the prevailing gold price. No new operations are anticipated in the near future. The known oil reserves in the area are mostly small, shallow pools so major oil developments are not foreseen. Some interest in shale oil extraction and coal bed methane development have been discussed, however no projects are known to be on the drawing board for the foreseeable future.

Bull Mountain Mine Project has developed a proposal for a large underground coal mine in Musselshell County near Roundup. The electrical load has been projected to be in the 12 to 15 MW range when in full operation. This load would be staged in over a five year span under ideal conditions. The mine is presently using 1 MW for extracting coal for test markets. The company is still looking for financial backing and user markets before committing to the expansion plans.



We continue to serve 67 Minuteman Missile sites. While we do not foresee any major change in their usage in the future, there has been a slow but steady growth in kWh sales.

Teresan Pipelines, LLC, an oil based pipeline company has contracted with us to provide power to two separate pumping stations within our service territory. The load will be approximately 16,000 horsepower and will come on line the beginning of the second quarter 2005. The expected load will be nearly equal to our summer peak for the rest of our system.

Other classes of electricity use are expected to remain relatively flat with the exception of rural residential housing. The area immediately around Lewistown has shown some subdivision development with primarily retired people from outside the area moving in. The same growth is being seen in the Bull Mountain area around Roundup. This area is becoming a bedroom community for people from the Billings area. A slight increase in growth each year is expected from this classification. Irrigation development coincides with river and stream flows. The majority of lands adjacent to these waters are either already irrigated or too rugged for efficient farming operations. Street lighting and public authorities are well established and no large growth is expected within the service territory.

### **SUMMARY**

Fergus Electric Cooperative, Inc. has been a picture of stability for over 40 years. With the Teresan Pipeline project coming on line and the Bull Mountain Project proposing their expansion there is growth at a pace that we have not seen since incorporation. Our service area is not a destination travel place and future industrial growth will probably be minimal. Our primary industry has been and will be the agricultural operations that dominate the area. Some say that our service area is on the verge of being "found". However historical observations have shown that large increases in growth will take years and possibly decades before becoming significant.

**FERGUS ELECTRIC**  
**SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**  
 Page 1 of 2

YEAR	SMALL			LARGE			IRRIGATION	Other	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
	RESIDENTIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL					
1971	34,430	4,493	977	518	14,428	54,846	5,582	60,428			
1972	36,353	4,746	1,041	354	14,097	56,591	5,805	62,396			
1973	35,904	4,680	992	474	14,194	56,244	6,196	62,440			
1974	37,841	5,002	1,313	619	14,247	59,022	6,222	65,244			
1975	43,320	5,705	1,422	697	14,091	65,235	7,340	72,575			
1976	42,649	5,731	1,838	1,647	13,852	65,717	7,262	72,979			
1977	44,830	5,877	1,459	1,726	13,774	67,666	10,234	77,900			
1978	49,155	6,579	2,601	1,048	11,716	71,099	12,579	83,678			
1979	44,888	9,963	8,366	1,673	9,149	74,039	9,629	83,668			
1980	49,172	5,044	3,067	2,647	10,217	70,147	11,120	81,267			
1981	48,790	4,469	2,967	2,596	10,904	69,726	8,978	78,704			
1982	56,058	4,210	3,303	2,491	9,294	75,356	3,356	78,712			
1983	50,574	4,498	3,084	3,419	9,217	70,792	9,431	80,223			
1984	54,998	4,729	3,696	3,810	9,505	76,738	10,364	87,102			
1985	55,046	5,692	3,095	3,076	9,352	76,261	6,355	82,616			
1986	47,899	4,350	2,538	2,708	9,502	66,997	7,651	74,648			
1987	45,736	4,433	3,398	2,374	9,205	65,146	7,464	72,610			
1988	48,871	4,746	5,644	2,941	9,242	71,444	8,272	79,716			
1989	51,625	4,660	7,463	2,114	9,320	75,182	7,496	82,678			
1990	49,147	4,507	6,912	2,634	9,287	72,487	8,058	80,545			
1991	52,082	3,948	8,896	1,562	9,247	75,735	8,245	83,980			
1992	47,674	4,099	9,802	2,928	9,064	73,567	7,718	81,285			
1993	54,938	3,907	10,329	1,565	9,222	79,961	8,355	88,316			
1994	53,202	3,897	10,292	2,677	8,440	78,508	8,970	87,478			
1995	53,849	3,735	9,150	1,616	7,418	75,768	8,289	84,057			
1996	57,965	4,105	11,576	2,305	8,352	84,303	7,281	91,584			
1997*	55,101	4,013	9,499	2,012	8,957	79,582	8,128	87,710			
1998	51,879	3,696	7,944	2,431	9,362	75,312	7,210	82,522			
1999	52,746	3,536	5,915	2,130	9,496	73,823	8,158	81,981			
2000	52,488	3,378	5,803	2,468	9,486	73,623	14,037	87,660			

H I S T O R I C A L

**FERGUS ELECTRIC**

**SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**  
Page 2 of 2

FERGUS ELECTRIC	YEAR	SMALL			LARGE			IRRIGATION	Other	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
		RESIDENTIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	Other					
HI	2001	52,686	3,231	6,000	2,121	9,450	73,488	8,165	81,653			
ST	2002	53,831	3,150	7,800	2,400	9,450	76,631	8,515	85,146			
ORY	2003	55,202	3,150	12,000	2,450	9,450	82,252	9,139	91,391			
P R O J E C T E D	2004	55,556	3,200	12,180	2,450	9,450	82,836	9,926	92,762			
	2005**	55,884	3,248	107,489	2,450	9,450	178,521	21,391	199,912			
	2006	56,908	3,250	107,500	2,450	9,450	179,558	21,515	201,073			
	2007	58,188	3,250	107,500	2,450	9,450	180,838	21,668	202,506			
	2008	59,487	3,250	107,500	2,450	9,450	182,137	21,824	203,961			
	2009	60,806	3,250	107,500	2,450	9,450	183,456	21,982	205,438			
	2010	61,921	3,250	107,500	2,450	9,450	184,571	22,115	206,686			
	2011	63,051	3,250	107,500	2,450	9,450	185,701	22,251	207,952			
	2012	64,194	3,250	107,500	2,450	9,450	186,844	22,388	209,232			
	2013	65,352	3,250	107,500	2,450	9,450	188,002	22,527	210,529			
	2014	66,524	3,250	107,500	2,450	9,450	189,174	22,667	211,841			
	2015	67,711	3,250	107,500	2,450	9,450	190,361	22,809	213,170			
	2016	68,913	3,250	107,500	2,450	9,450	191,563	22,953	214,516			
	2017	70,130	3,250	107,500	2,450	9,450	192,780	23,099	215,879			
	2018	71,362	3,250	107,500	2,450	9,450	194,012	23,247	217,259			
	Growth Rate	1971-2003	1.49%	-1.10%	8.15%	4.98%	-1.31%	1.27%	1.55%	1.30%		
	Historic	1993-2003	0.05%	-2.13%	1.51%	4.58%	0.24%	0.28%	0.90%	0.34%		
		1998-2003	1.25%	-3.14%	8.60%	0.16%	0.19%	1.78%	4.86%	2.06%		
Growth Rate	2003-2008	1.51%	0.63%	55.04%	0.00%	0.00%	17.23%	19.01%	17.42%			
Projected	2003-2016	1.72%	0.24%	18.37%	0.00%	0.00%	6.72%	7.34%	6.78%			
	2008-2013	1.90%	0.00%	0.00%	0.00%	0.00%	0.64%	0.64%	0.64%			
	2013-2018	1.78%	0.00%	0.00%	0.00%	0.00%	0.63%	0.63%	0.63%			
Historical Average Compound Growth Rates:	1971-2003			1.30%	1993-2003		1998-2003	2.06%				
Projected Average Compound Growth Rates:	2004-2008		21.77%	2009-2013		2014-2018	0.63%					

\*Purchases & Losses reflect a change to calendar billing by power supplier  
\*\* Reflects Teresan Pipeline Addition

**FERGUS ELECTRIC**  
**SYSTEM DEMAND REQUIREMENTS BY YEAR (mW)**

**TABLE 2**  
 Page 1 of 2  
 Total Annual REQUIREMENT

Year	January	February	March	April	May	June	July	August	September	October	November	December	REQUIREMENT
1982	10,089	8,506	8,170	3,519	6,428	5,258	4,990	5,955	5,288	5,567	6,828	8,113	78,711
1983	8,790	7,751	6,247	7,464	6,280	5,965	5,713	6,079	5,425	6,132	5,930	8,446	80,222
1984	11,561	8,286	7,552	7,358	6,045	6,687	6,176	5,958	5,850	4,870	8,173	8,587	87,103
1985	9,466	10,142	7,902	6,153	5,938	6,472	5,421	5,129	4,797	5,426	6,259	9,510	82,615
1986	7,216	8,530	6,178	6,193	6,142	5,402	5,321	5,505	5,117	5,217	6,599	7,228	74,648
1987	7,458	7,444	6,428	6,796	5,281	5,516	5,266	5,387	4,971	5,168	5,765	7,428	72,608
1988	9,212	8,898	6,998	6,822	5,857	5,833	5,834	5,781	5,350	5,395	6,250	7,485	79,715
1989	9,359	9,491	8,360	7,987	5,725	5,802	5,756	5,974	5,263	5,410	6,391	7,161	82,679
1990	8,922	8,778	7,019	7,555	5,886	5,942	5,906	5,913	5,593	5,166	6,410	7,455	80,545
1991	11,058	8,282	7,515	6,919	6,482	5,904	5,091	6,096	5,785	5,294	7,935	7,920	83,981
1992	8,471	7,981	6,865	6,705	6,019	6,560	5,499	6,184	5,769	5,719	7,577	7,937	81,286
1993	11,778	8,467	8,763	7,432	6,722	6,253	5,657	5,638	5,588	6,026	7,472	8,521	88,317
1994	9,873	9,131	8,056	7,515	6,366	5,760	6,165	6,829	6,006	5,740	7,311	8,726	87,478
1995	9,119	8,450	7,714	7,897	6,027	5,978	5,366	5,970	5,802	5,662	7,860	8,212	84,057
1996	9,395	10,807	9,194	8,604	6,677	6,663	5,884	6,604	5,629	5,860	7,304	8,963	91,584
1997*	10,985	9,656	7,462	8,274	6,350	6,456	5,651	6,063	6,015	5,616	7,206	7,976	87,710
1998	9,218	7,785	7,869	7,077	6,205	6,366	5,815	7,058	5,748	5,767	6,527	7,087	82,522
1999	9,820	8,764	6,510	7,333	7,650	5,803	4,982	6,723	5,425	5,507	6,292	7,172	81,981
2000	8,794	7,937	7,278	7,094	6,299	7,442	7,690	5,920	5,377	6,127	8,091	9,610	87,659

H I S T O R I C A L

\*Purchases & Losses reflect a change to calendar billing by power supplier

**FERGUS ELECTRIC**  
**SYSTEM DEMAND REQUIREMENTS BY YEAR (mW)**

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total Annual REQUIREMENT											
	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year												
2001	15,257	17,529	13,944	12,880	12,053	11,162	10,902	11,372	10,849	12,277	14,422	15,743	158,390											
2002	16,705	17,752	18,098	15,971	12,407	11,546	11,871	10,823	10,666	15,460	15,450	15,608	172,157											
2003	16,902	19,039	18,376	13,290	12,083	11,733	13,442	12,228	11,686	14,428	16,747	16,594	176,548											
2004***	17,156	20,689	18,652	13,489	12,264	11,909	13,644	12,411	11,861	14,644	16,998	16,843	180,561											
2005**	34,315	41,985	35,811	30,649	29,424	29,068	30,803	29,571	29,021	31,804	34,158	34,002	390,610											
2006	34,830	42,615	36,348	31,108	29,865	29,504	31,265	30,014	29,456	32,281	34,670	34,512	396,469											
2007	35,352	43,254	36,893	31,575	30,313	29,947	31,734	30,465	29,898	32,765	35,190	35,030	402,416											
2008	35,882	43,903	37,447	32,049	30,768	30,396	32,210	30,922	30,346	33,257	35,718	35,555	408,452											
2009	36,062	44,122	37,634	32,209	30,921	30,548	32,371	31,076	30,498	33,423	35,896	35,733	410,494											
2010	36,242	44,343	37,822	32,370	31,076	30,701	32,533	31,232	30,651	33,590	36,076	35,912	412,547											
2011	36,423	44,565	38,011	32,532	31,231	30,854	32,696	31,388	30,804	33,758	36,256	36,091	414,610											
2012	36,605	44,787	38,201	32,695	31,388	31,009	32,859	31,545	30,958	33,927	36,438	36,272	416,683											
2013	36,788	45,011	38,392	32,858	31,545	31,164	33,023	31,702	31,113	34,096	36,620	36,453	418,766											
2014	36,972	45,236	38,584	33,022	31,702	31,320	33,188	31,861	31,288	34,267	36,803	36,636	420,860											
2015	37,231	45,553	38,854	33,253	31,924	31,539	33,421	32,084	31,487	34,507	37,060	36,892	423,806											
2016	37,492	45,872	39,126	33,486	32,148	31,760	33,655	32,308	31,707	34,748	37,320	37,150	426,773											
2017	37,754	46,193	39,400	33,721	32,373	31,982	33,890	32,535	31,929	34,991	37,581	37,410	429,760											
2018	38,019	46,516	39,676	33,957	32,599	32,206	34,128	32,762	32,153	35,236	37,844	37,672	432,768											
Historical Average Compound Growth Rates:													1982-2003	3.74%	1993-2003	7.17%	1998-2003	16.58%						
Projected Average Compound Growth Rates:													2004-2008	21.77%	2009-2013	0.46%	2014-2018	0.63%						

\*Purchases & Losses reflect a change to calendar billing by power supplier  
 \*\* Reflects Teresan Pipeline Addition Adjusted for Losses  
 \*\*\* Actual Demand for February 2004

**TABLE 3**  
Page 1 of 2

**FERGUS ELECTRIC**  
**SYSTEM PURCHASES: DEMAND (kW) AND ENERGY (kWh) and Total System Load Factor**

**Total Demand REQUIREMENTS**

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Year 2001</b>													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	15,257	17,529	13,944	12,880	12,053	11,162	10,902	11,372	10,849	12,277	14,422	15,743	158,390
Energy	8,219,747	8,283,011	7,472,228	6,482,066	6,127,442	5,441,947	5,709,393	5,747,868	5,091,491	5,977,294	6,399,860	8,331,499	79,283,846
Load Factor	72.41%	70.32%	72.03%	69.90%	68.33%	67.71%	70.39%	67.94%	65.18%	65.44%	61.63%	71.13%	51.63%
<b>Year 2002</b>													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	16,705	17,752	18,098	15,971	12,407	11,546	11,871	10,623	10,666	15,460	15,450	15,608	172,157
Energy	8,482,388	7,445,354	9,183,394	6,816,062	6,051,138	5,806,241	5,999,655	5,354,663	5,231,670	6,730,088	7,235,593	8,279,373	82,615,619
Load Factor	68.25%	62.41%	68.20%	59.27%	65.55%	69.84%	67.93%	67.75%	68.12%	58.51%	65.04%	71.30%	52.11%
<b>Year 2003</b>													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	16,902	19,039	18,376	13,290	12,083	11,733	13,442	12,228	11,686	14,428	16,747	16,594	176,548
Energy	8,421,625	7,917,227	8,274,003	6,143,695	6,099,875	5,664,630	6,945,169	6,368,659	5,578,377	5,960,537	8,338,721	8,634,728	84,347,246
Load Factor	66.97%	61.88%	60.52%	64.21%	67.85%	67.05%	69.45%	70.00%	66.30%	55.53%	69.16%	69.94%	50.57%
<b>Year 2004</b>													
Days	31	29	31	30	31	30	31	31	30	31	30	31	366
Hours	744	696	744	720	744	720	744	744	720	744	720	744	8784
Demand	20,689	17,375	15,041	12,297	12,992	11,647	12,965	12,000					
Energy	9,698,725	8,206,873	7,533,279	6,167,093	6,697,711	5,925,740	6,352,953	6,060,461					
Load Factor	63.01%	67.86%	67.32%	69.65%	69.29%	70.66%	65.86%	67.88%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Average													
Load Factor	67.66%	65.62%	67.02%	65.76%	67.76%	68.82%	68.41%	68.56%	66.54%	59.83%	65.28%	70.79%	51.44%

H I S T O R I C A L

**FERGUS ELECTRIC**

**TABLE 3  
Page 2 of 2**

**SYSTEM PURCHASES: DEMAND (mW) AND ENERGY (mWh) and Total System Load Factor**

Total Demand REQUIREMENTS

	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand
P R O J E C T E D	2004	92,762	51.44%	21	2009	205,438	51.44%	46	2014	211,842	51.44%	47
	2005	199,911	51.44%	44	2010	206,687	51.44%	46	2015	213,171	51.44%	47
	2006	201,072	51.44%	45	2011	207,952	51.44%	46	2016	214,516	51.44%	48
	2007	202,506	51.44%	45	2012	209,232	51.44%	46	2017	215,879	51.44%	48
	2008	203,961	51.44%	45	2013	210,529	51.44%	47	2018	217,259	51.44%	48

MID-YELLOW



## Section IV:

### **Mid-Yellowstone Electric Cooperative:**

- System Energy Requirements by Consumer Class – Historic 1971-2003
- System Energy Requirements by Consumer Class – Projected 2004-2018
- System Demand Requirements – Historic 1982-2003
- System Demand Requirements – Projected 2004-2018
- Member System Purchases: Demand and Energy – Actual 2001-2004
- Member System Purchases: Demand and Energy – Projected Based on Historic Energy Purchases

**MID-YELLOWSTONE ELECTRIC**  
**COOPERATIVE, INC.**  
**MONTANA 17 ROSEBUD**  
**NARRATIVE**

Theodore D. Church, General Manager

**I. GENERAL DATA:**

**A. LOCATION:**

Mid-Yellowstone Electric's office is located in Hysham, Montana, which is the county seat of Treasure County. Hysham is located in south central Montana. The Cooperative serves all of Treasure County, about two-thirds of Rosebud County, and small portions of Custer and Big Horn counties. The Cooperative's service area is roughly 6,400 square miles. The western boundary begins at the confluence of the Big Horn and Yellowstone Rivers and its eastern boundary ends approximately where the Tongue River enters the Yellowstone River. The Yellowstone River flows eastwardly and laterally bisects Mid-Yellowstone's service area.

**B. TERRAIN:**

The Yellowstone River valley is flat and well suited for irrigation. North and south of the river valley, the terrain is hilly, comprised of grasslands well suited for livestock. A small percentage of this hilly ground is used for dry land farming. Some of the Cooperative's irrigation load takes water out of the Yellowstone River onto the hilly ground; however, the lifts are quite high and the horsepower requirements are quite large.

**C. CLIMATE:**

The Cooperative's service area can have drastic temperature extremes, ranging from minus 50 degrees F. during the winter months to plus 100 degrees F. during the summer months. The heating degree days are approximately 7,400 and the cooling degree days are approximately 600. The average annual precipitation is about 12.5 inches; however, the area served by our Cooperative has experienced a drought for the last six years.

#### **D. POPULATION:**

According to a 2003 estimate, the population of Treasure County is 723, down 126 from the 2000 census, and down 139 from the 1990 census. The 2003 estimate for Rosebud County is 9,303, down 80 from the 2000 census, and down 1,202 from the 1990 census. We assume the population in both counties has stabilized. The population for Treasure County peaked in the 1970's due to construction of Montana Power Company's Colstrip units one and two. The population of Rosebud County peaked in the early 1980's due to construction of Colstrip units three and four. Most of the population increase in Rosebud County occurred in the towns of Colstrip and Forsyth, which are served by NorthWestern Energy and Montana-Dakota Utilities, and not in the rural areas served by our Cooperative.

#### **E. ECONOMY:**

The economy of the Cooperative's service area is directly linked to agriculture – farming and ranching. Both the farming and ranching economies cycle between good and bad years. Good economic years for agriculture tend to have a positive impact on our number of new services.

#### **F. TRANSPORTATION:**

The Burlington Northern Santa Fe Railroad, much like the Yellowstone River, runs laterally through our service area; however, coal is about the only product transported by rail. Most agricultural produce from our service area is hauled by truck over the interstate highway. Interstate 94 parallels the railroad and, also, divides our service area from east to west. The only major airport is in Billings, Montana, which is located sixty miles west of our service area.

#### **G. 2001 CONSUMER SURVEY RESULTS:**

In comparing our Cooperative's end use surveys from 1983 to 2001, the saturation of electric heat has decreased about 14 percent to a total of 28 percent, while propane has increased about 8 percent to a total of 39 percent. Other sources of heat include coal, wood, and fuel oil.

## **H. ENERGY PRICES AND AVAILABILITY:**

Natural gas is not available in our service area. Normally, the cost of propane has been less than the cost of electricity in terms of BTU's adjusted for efficiencies.

## **II. HISTORICAL AND FUTURE DEVELOPMENTS:**

Our Cooperative had one large industrial load that ceased operation in 2000. We do not anticipate any new industrial loads to develop in our service area. Our Cooperative's load has remained basically unchanged for the past thirty years. We anticipate our electric load to remain unchanged into the future.

## **III. ASSUMPTIONS:**

### Residential:

As electric rates continue to increase, our electric heat load will continue to decrease. Our electric base load for new residential connections will compensate for the loss of electric heat and result in no load growth.

### Large Commercial and Industrial:

We do not anticipate any new large customers in the forecast period; however, we are always hopeful that some coal bed methane development would happen in our service area.

### Irrigation:

Waste water concerns, labor savings, water application efficiencies, and federal farm programs have promoted the increase of sprinkler irrigation installations in our service area. However, due to increasing electric rates, some of our Cooperative's large horsepower/high lift irrigation units will be idled, resulting in no load growth for the irrigation category.

### Public Street and Highway Lighting and Sales for Resale:

We anticipate no growth in these categories.

### Seasonal and Small Commercial:

We have experienced modest increases in numbers of line extensions to seasonal and small commercial consumers; however, both classes are extremely small users of electricity. Therefore, we anticipate negligible load growth in these consumer categories.

**MID-YELLOWSTONE ELECTRIC  
SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**

Page 1 of 2

YEAR	SMALL			LARGE		IRRIGATION	OTHER SALES	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
	RESIDENTIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL					
1971	10,270	1,220	440	1,123	64	13,117	1,528	14,645		
1972	10,971	1,295	626	1,253	69	14,214	1,804	16,018		
1973	10,928	1,463	595	2,384	70	15,440	1,936	17,376		
1974	12,031	1,687	508	2,897	68	17,191	2,168	19,359		
1975	14,415	2,553	506	2,493	68	20,035	2,134	22,169		
1976	14,117	2,608	557	5,402	66	22,750	2,748	25,498		
1977	15,675	2,591	218	5,856	64	24,404	2,259	26,663		
1978	17,113	2,737	0	3,078	64	22,992	3,450	26,442		
1979	17,077	2,682	67	5,745	65	25,636	3,180	28,816		
1980	16,895	2,769	52	7,988	77	27,781	3,534	31,315		
1981	16,268	2,917	30	4,535	83	23,833	2,992	26,825		
1982	19,489	3,800	19	3,733	79	27,120	2,744	29,864		
1983	18,233	3,700	32	3,778	80	25,823	2,820	28,643		
1984	18,814	3,335	42	3,555	77	25,823	3,602	29,425		
1985	19,415	3,585	32	4,681	78	27,791	3,271	31,062		
1986	16,543	3,271	2	2,813	77	22,706	2,860	25,566		
1987	15,107	3,156	0	2,921	75	21,259	2,677	23,936		
1988	16,377	3,352	32	5,292	77	25,130	3,241	28,371		
1989	17,254	3,850	299	2,809	86	24,298	2,601	26,899		
1990	15,684	3,419	392	4,489	95	24,079	3,087	27,166		
1991	16,307	3,588	370	2,578	105	22,948	2,863	25,811		
1992	14,700	3,632	306	3,529	95	22,262	2,678	24,940		
1993	16,807	3,938	490	1,701	112	23,048	2,767	25,815		
1994	16,588	3,543	1,396	4,090	101	25,718	3,288	29,006		
1995	16,601	3,311	1,350	3,565	119	24,946	3,092	28,038		
1996	18,349	2,731	1,514	3,998	190	26,782	3,335	30,117		
1997*	17,249	2,605	1,030	3,872	27	24,783	2,955	27,738		
1998	16,379	2,606	911	4,737	109	24,742	3,186	27,928		
1999	16,140	2,488	1,294	4,516	114	24,552	2,999	27,551		
2000	16,517	2,785	182	5,548	110	25,142	4,184	29,326		

H I S T O R I C A L

**MID-YELLOWSTONE ELECTRIC**  
**SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**  
 Page 2 of 2

MID-YELL ELECTRIC	YEAR	SMALL		LARGE		IRRIGATION	Other SALES	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
		RESIDENTIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL					
HI ST ORY	2001	16,556	2,849	0	0	4,512	116	24,033	3,103	26,515
	2002	16,712	2,819	0	0	5,443	105	25,079	3,125	28,204
P R O J E C T E D	2003	16,316	2,830	0	0	4,084	94	23,324	3,226	26,550
	2004 **	17,425	2,857	0	0	4,437	109	24,826	3,271	28,097
	2005	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2006	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2007	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2008	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2009	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2010	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2011	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2012	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2013	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2014	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2015	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2016	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2017	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
	2018	17,369	2,900	0	0	4,450	110	24,829	3,271	28,100
Growth Rate	1971-2003	1.46%	2.66%	-17.32%	0	4.12%	1.21%	1.81%	2.36%	1.88%
Historic	1993-2003	-0.30%	-3.25%	-46.18%	0	9.15%	-1.74%	0.12%	1.55%	0.28%
	1998-2003	-0.08%	1.66%	-74.40%	0	-2.92%	-2.92%	-1.17%	0.25%	-1.00%
Growth Rate	2003-2008	1.26%	0.49%	0.00%	0	1.73%	3.19%	1.26%	0.28%	1.14%
Projected	2003-2016	0.48%	0.19%	0.00%	0	0.66%	1.22%	0.48%	0.11%	0.44%
	2008-2013	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%
	2013-2018	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%
Historical Average Compound Growth Rates:	1971-2003		1.88%	1.88%	1.88%	1.88%	0.28%	1.88%	1.88%	1.88%
Projected Average Compound Growth Rates:	2004-2008		**	**	**	1993-2003	**	1998-2003	**	2014-2018

\*Purchases & Losses reflect a change to calendar billing by power supplier

\*\* Total represents a 10 year Average

**MID-YELLOWSTONE ELECTRIC  
SYSTEM DEMAND REQUIREMENTS BY YEAR (KW)**

**TABLE 2**  
Page 1 of 2

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total Annual REQUIREMENT
H	7,196	7,763	5,924	4,932	4,163	6,092	6,263	6,711	5,222	4,209	5,443	6,011	69,929
I	6,161	5,856	4,591	4,891	4,106	5,783	6,886	6,484	5,154	4,868	4,239	6,490	65,509
S	9,160	7,642	5,082	4,762	5,344	5,239	6,441	6,247	4,792	4,555	5,794	6,419	71,477
T	7,191	8,008	5,814	4,512	4,405	7,824	7,902	5,099	3,749	4,352	5,177	7,404	71,437
O	5,771	6,530	6,163	4,347	3,705	5,283	5,444	4,921	4,380	3,690	6,542	5,457	62,133
R	5,176	5,629	5,159	4,705	5,737	6,034	6,317	4,936	3,808	3,480	4,064	4,718	59,763
R	6,999	6,330	4,861	4,419	5,064	6,694	6,022	5,781	4,884	3,665	4,168	4,671	63,558
I	6,181	7,271	6,628	5,518	3,752	3,620	6,808	5,522	4,750	3,659	4,297	5,641	63,647
C	7,911	6,148	5,549	4,735	4,099	4,234	6,203	6,829	5,650	4,230	4,156	4,840	64,584
A	7,211	6,174	5,037	3,944	3,812	3,124	5,057	6,103	5,208	3,070	5,467	4,678	58,885
L	4,817	5,182	4,266	4,232	3,809	5,589	5,526	4,836	5,447	3,675	3,846	5,048	56,273
	6,060	5,558	6,406	4,888	3,611	5,114	5,137	3,970	4,561	3,454	4,564	6,019	59,342
	5,594	6,802	6,596	4,581	3,565	5,185	5,461	6,107	5,215	3,688	4,438	5,660	62,882
	5,697	5,706	6,028	4,456	3,751	3,925	5,720	6,722	5,930	4,156	5,041	6,069	63,201
	5,656	7,386	6,476	5,555	3,486	3,342	6,756	6,947	5,921	3,662	4,440	5,743	65,370
	6,836	5,386	5,147	4,645	5,251	5,330	6,049	5,976	4,373	4,061	4,772	5,297	63,123
	6,318	4,741	5,589	3,754	5,008	4,906	7,246	6,781	4,508	3,805	4,519	5,826	63,001
	5,937	4,777	4,703	3,844	3,858	5,339	7,291	7,033	4,434	3,747	4,371	4,944	60,278
2000	4,786	4,769	4,570	3,794	5,100	5,846	7,515	6,603	4,573	3,486	5,072	6,139	62,253

\*Purchases & Losses reflect a change to calendar billing by power supplier

**MID-YELLOWSTONE ELECTRIC  
SYSTEM DEMAND REQUIREMENTS BY YEAR (kW)**

**TABLE 2**  
Page 2 of 2

Mid Yell.  
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Year	January	February	March	April	May	June	July	August	September	October	November	December	Total Annual REQUIREMENT						
	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year							
HI	2001	4,713	5,404	4,168	3,378	5,916	7,338	6,617	3,895	3,524	4,422	4,698	59,925						
ST ORY	2002	5,176	5,255	5,249	4,428	3,557	7,980	6,514	3,950	4,137	4,439	4,746	61,840						
	2003	4,922	5,004	5,247	3,463	3,138	7,133	7,078	3,243	3,597	4,918	4,650	57,635						
	2004	4,937	5,221	4,888	3,756	4,204	7,484	6,736	3,696	3,753	4,593	4,698	59,800						
P R O J E C T E D	2005	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,979						
	2006	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2007	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2008	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2009	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2010	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2011	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2012	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2013	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2014	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2015	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2016	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2017	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	2018	4,952	5,237	4,903	3,768	4,216	7,506	6,757	3,707	3,764	4,607	4,712	59,981						
	Historical Average Compound Growth Rates:													1982-2003	-0.67%	1993-2003	-0.29%	1998-2003	-0.89%
	Projected Average Compound Growth Rates:													2004-2008	**	2009-2013	**	2014-2018	**
	*Purchases & Losses reflect a change to calendar billing by power supplier																		



**MID-YELLOWSTONE ELECTRIC**  
**SYSTEM PURCHASES: DEMAND (kW) AND ENERGY (kWh) and Total System Load Factor**  
**TABLE 3**  
 Page 1 of 2

**Total Demand REQUIREMENTS**

	Year 2001	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days	31	28	31	30	31	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	744	720	744	744	720	744	720	744	8760
Demand	4,713	5,404	4,168	3,378	5,916	5,852	7,338	6,617	3,895	3,524	4,422	4,422	4,698	59,925
Energy	2,529,447	2,471,554	2,088,952	1,619,672	2,381,523	1,853,788	3,051,997	3,125,933	1,450,636	1,647,750	1,842,333	2,451,322	2,451,322	26,514,907
Load Factor	72.14%	68.06%	67.36%	66.59%	54.11%	44.00%	55.90%	63.50%	51.73%	62.85%	57.87%	70.13%	70.13%	41.25%
Year 2002	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
Days	31	28	31	30	31	30	31	31	30	31	30	31	365	
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760	
Demand	5,176	5,255	5,249	4,428	3,557	6,409	7,980	6,514	3,950	4,137	4,439	4,746	61,840	
Energy	2,550,528	2,057,434	2,621,069	1,806,591	1,646,313	2,656,061	4,106,572	2,998,921	1,543,913	1,773,616	2,003,782	2,438,773	28,203,573	
Load Factor	66.23%	58.26%	67.12%	56.67%	62.21%	57.56%	69.17%	61.88%	54.29%	57.62%	62.69%	69.07%	40.35%	
Year 2003	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
Days	31	28	31	30	31	30	31	31	30	31	30	31	365	
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760	
Demand	4,922	5,004	5,247	3,463	3,138	5,242	7,133	7,078	3,243	3,597	4,918	4,650	57,635	
Energy	2,492,978	2,278,839	2,301,744	1,523,697	1,495,847	1,825,735	3,657,538	3,315,973	1,457,776	1,493,619	2,237,731	2,468,409	26,549,886	
Load Factor	68.08%	67.77%	58.96%	61.11%	64.07%	48.37%	68.92%	62.97%	62.43%	55.81%	63.20%	71.35%	42.49%	
Year 2004	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
Days	31	29	31	30	31	30	31	31	30	31	30	31	366	
Hours	744	696	744	720	744	720	744	744	720	744	720	744	8784	
Demand	5,946	5,335	3,993	3,426	5,241	5,529	7,272	6,854						
Energy	2,832,104	2,375,293	1,874,803	1,533,591	2,368,785	2,491,355	3,103,056	3,474,080						
Load Factor	64.02%	63.97%	63.11%	62.17%	60.75%	62.58%	57.35%	68.13%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
Average														
Load Factor	67.62%	64.51%	64.14%	61.64%	60.28%	53.13%	62.84%	62.78%	56.15%	58.76%	61.25%	70.18%	41.36%	

H I S T O R I C A L

**MID-YELLOWSTONE ELECTRIC**  
**SYSTEM PURCHASES: DEMAND (mW) AND ENERGY (mWh) and Total System Load Factor**

**TABLE 3**

Total Demand  
**REQUIREMENTS**

	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand
P	2004	28,097	41.36%	8	2009	28,100	41.36%	8	2014	28,100	41.36%	8
R												
O	2005	28,100	41.36%	8	2010	28,100	41.36%	8	2015	28,100	41.36%	8
J												
E	2006	28,100	41.36%	8	2011	28,100	41.36%	8	2016	28,100	41.36%	8
C												
T	2007	28,100	41.36%	8	2012	28,100	41.36%	8	2017	28,100	41.36%	8
E												
D	2008	28,100	41.36%	8	2013	28,100	41.36%	8	2018	28,100	41.36%	8

TONGUE RIVER

## Section V:

### **Tongue River Electric Cooperative:**

- System Energy Requirements by Consumer Class – Historic 1971-2003
- System Energy Requirements by Consumer Class – Projected 2004-2018
- System Demand Requirements – Historic 1982-2003
- System Demand Requirements – Projected 2004-2018
- Member System Purchases: Demand and Energy – Actual 2001-2004
- Member System Purchases: Demand and Energy – Projected Based on Historic Energy Purchases

**Tongue River Electric Cooperative**  
**MONTANA 33 CUSTER**  
**NARRATIVE**

Harold Hanson, General Manager

Tongue River Electric Cooperative, Inc. serves approximately 4980 meters in several counties in southeastern Montana. More specifically this area includes portions of Rosebud, Big Horn, Custer, Powder River, Prairie, Dawson and Wibaux counties, as well as the Northern Cheyenne Reservation. Tongue River Electric Cooperative was first energized on September 9, 1949 and the system's main office is located in Ashland, Montana.

The land in Tongue River's service area is used primarily for irrigated and dry land farming and rangeland for livestock. The Custer National Forrest and private lands within Tongue River's service are the main source of timber for this area. The area is blessed with an abundance of natural resources including coal and coal bed methane gas that has yet to be developed. The Belle Creek oil field is also in Tongue River Electric's service area.

Tongue River Electric Cooperative services the towns of Ashland, Broadus, Biddle, Birney, Busby and Lame Deer. The St. Labre Indian School and the Northern Cheyenne Reservation, Tribal Offices, Schools and residential areas provide Tongue River Electric with large stable loads. The planned development of the methane gas reserves in Tongue River's service area will add a great deal to the cooperative's load base. The diverse service area provides Tongue River with stable load and a reasonably good load factor.

The system is in good shape and well maintained. The Four-Year Work Plans have been adhered to and work has been completed in a timely manner. Transmission line and substations are well maintained with the transformers being tested yearly. The distribution system improvements include approximately 500 pole replacements each year.

**TONGUE RIVER ELECTRIC**  
**SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**  
 Page 1 of 2

YEAR	SMALL			LARGE		IRRIGATION	OTHER SALES	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
	RESIDENTIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL					
1971	14,459	4,276	6,879	627	318	26,559	3,653	30,212		
1972	15,114	4,190	6,490	566	298	26,558	3,290	29,948		
1973	16,117	4,031	6,534	970	301	27,953	2,554	30,507		
1974	17,920	3,772	7,088	945	308	30,033	3,596	33,629		
1975	21,225	4,360	7,865	775	308	34,533	3,952	38,485		
1976	22,421	4,963	7,506	1,239	245	36,374	4,208	40,582		
1977	24,784	4,883	8,119	1,933	316	40,035	5,164	45,199		
1978	28,489	5,339	10,921	1,283	324	46,356	5,074	51,430		
1979	32,698	6,277	14,083	1,630	346	55,034	3,660	58,694		
1980	33,034	5,614	13,939	2,696	409	55,692	8,260	63,952		
1981	34,024	5,770	13,800	3,498	407	57,499	7,649	65,148		
1982	40,046	6,665	12,067	3,157	411	62,346	2,630	64,976		
1983	40,613	6,860	12,009	4,209	401	64,092	6,819	70,911		
1984	45,394	9,182	13,480	5,712	389	74,157	5,806	79,963		
1985	48,643	8,066	12,470	4,875	402	74,456	7,672	82,128		
1986	44,468	6,372	12,257	4,165	418	67,680	5,414	73,094		
1987	43,630	6,613	11,328	3,069	384	65,024	4,686	69,710		
1988	47,348	7,025	13,996	5,732	405	74,506	5,855	80,361		
1989	47,196	7,166	15,553	3,793	397	74,105	6,051	80,156		
1990	45,677	6,735	15,227	5,098	393	73,130	6,254	79,384		
1991	48,297	7,347	15,576	3,204	392	74,816	7,133	81,949		
1992	44,902	7,599	16,582	4,022	394	73,499	5,475	78,974		
1993	49,391	7,492	17,399	1,883	393	76,558	6,009	82,567		
1994	48,702	7,493	17,867	2,927	385	77,374	8,129	85,503		
1995	49,407	7,721	17,720	2,714	375	77,937	6,783	84,720		
1996	53,358	8,136	18,799	2,905	355	83,553	8,483	92,036		
1997*	52,033	8,440	17,938	3,318	353	82,082	6,924	89,006		
1998	48,737	8,944	17,553	4,639	354	80,227	6,925	87,152		
1999	47,345	7,572	18,152	2,687	343	76,099	8,146	84,245		
2000	49,786	8,619	19,335	5,084	343	83,167	13,747	96,914		

H I S T O R I C A L

**TONGUE RIVER ELECTRIC  
SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**  
Page 2 of 2

TONGUE RIVER ELECTRIC	YEAR	SMALL			LARGE			Other SALES	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
		RESIDENTIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	IRRIGATION				
HI	2001	50,038	19,633	4,188	3,339	341	77,539	7,583	85,122		
ST	2002	53,414	20,600	3,457	3,393	336	81,200	7,519	88,719		
ORY	2003	52,473	21,252	3,804	5,131	324	82,984	7,164	90,148		
	2004	53,134	21,571	4,000	3,927	350	82,982	8,519	91,501		
P	2005	53,936	21,895	4,060	3,986	350	84,226	8,646	92,872		
R	2006	54,751	22,223	4,121	4,046	350	85,491	8,776	94,267		
O	2007 **	55,462	22,556	23,831	4,106	350	106,306	10,919	117,225		
J	2008 **	56,199	22,894	43,541	4,168	350	127,152	13,053	140,205		
E	2009 **	61,007	23,237	65,700	4,231	350	154,525	15,863	170,388		
C	2010	62,913	23,586	65,700	4,294	350	156,843	16,101	172,944		
T	2011	64,847	23,940	65,700	4,358	350	159,195	16,343	175,538		
E	2012	66,811	24,299	65,700	4,424	350	161,584	16,588	178,172		
D	2013	68,804	24,664	65,700	4,490	350	164,008	16,837	180,845		
	2014	70,827	25,037	65,700	4,557	350	166,471	17,089	183,560		
	2015	72,880	25,413	65,700	4,625	350	168,968	17,345	186,313		
	2016	74,964	25,790	65,700	4,695	350	171,499	17,606	189,105		
	2017	77,079	26,177	65,700	4,765	350	174,071	17,870	191,941		
	2018	79,226	26,570	65,700	4,837	350	176,683	18,138	194,821		
Growth Rate	1971-2003	4.11%	5.14%	-1.84%	6.79%	0.06%	3.62%	2.13%	3.48%		
Historic	1993-2003	0.61%	10.99%	-14.10%	10.54%	-1.91%	0.81%	1.77%	0.88%		
	1998-2003	1.49%	18.90%	-26.35%	2.04%	-1.76%	0.68%	0.68%	0.68%		
Growth Rate	2003-2008	1.38%	1.50%	62.83%	-4.07%	1.56%	8.90%	12.75%	9.23%		
Projected	2003-2016	2.78%	1.50%	24.50%	-0.68%	0.60%	5.74%	7.16%	5.86%		
	2008-2013	4.13%	1.50%	8.58%	1.50%	0.00%	5.22%	5.22%	5.22%		
	2013-2018	2.86%	1.50%	0.00%	1.50%	0.00%	1.50%	1.50%	1.50%		
Historical Average Compound Growth Rates:			1971-2003		1993-2003		1998-2003				
Projected Average Compound Growth Rates:			2004-2008		2009-2013		2014-2018				

\*Purchases & Losses reflect a change to calendar billing by power supplier  
 \*\* These years reflect an increase in load due to Methane Gas production plus losses

**TONGUE RIVER ELECTRIC**  
**SYSTEM PURCHASES: DEMAND (mW) AND ENERGY (mWh) and Total System Load Factor**

Total Demand  
 REQUIREMENTS

Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand
2004	91,500	54.25%	19	2009	170,388	54.25%	36	2014	183,557	54.25%	39
2005	92,873	54.25%	20	2010	172,944	54.25%	36	2015	186,310	54.25%	39
2006	94,266	54.25%	20	2011	175,538	54.25%	37	2016	189,105	54.25%	40
2007	117,225	54.25%	25	2012	178,171	54.25%	37	2017	191,941	54.25%	40
2008	140,205	54.25%	30	2013	180,844	54.25%	38	2018	194,820	54.25%	41

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YELLOWSTONE

## Section VI:

### **Yellowstone Valley Electric Cooperative:**

- System Energy Requirements by Consumer Class – Historic 1971-2003
- System Energy Requirements by Consumer Class – Projected 2004-2018
- System Demand Requirements – Historic 1982-2003
- System Demand Requirements – Projected 2004-2018
- Member System Purchases: Demand and Energy – Actual 2001-2004
- Member System Purchases: Demand and Energy – Projected Based on Historic Energy Purchases

**YELLOWSTONE VALLEY ELECTRIC**  
**COOPERATIVE, INC.**  
**MONTANA 09 YELLOWSTONE**  
**NARRATIVE**

Terry Holzer, General Manager

**GEOGRAPHICAL:**

Yellowstone Valley Electric Cooperative (YVEC) was incorporated in 1937 and has matured into the second largest rural electric cooperative in Montana. The service area of YVEC is located in south central Montana, with the city of Billings providing the catalyst for much of YVEC's past and present growth. The size of the Cooperative's service area is approximately 10,000 square miles and consists of six counties. The eastern half of YVEC's service area is primarily agricultural, with small pockets of residential service areas. The growth in number of consumers has primarily occurred in the western half of YVEC's service area. Yellowstone Valley Electric Cooperative's customer makeup consists primarily of residential services that provide eighty percent (80%) of its customer base and retail energy sales. The remaining customer classifications and load share consists of irrigation four percent (4%), small commercial seven percent (7%), and large commercial nine percent (9%).

**SYSTEM INFRASTRUCTURE:**

The electrical infrastructure of YVEC consists of 142 miles of transmission facilities – with operating voltages of 230kV and 69kV, and 2190 miles of distribution facilities – with an operating voltage of 7.2/12.47 kV. Yellowstone Valley Electric's distribution system consist of 1,791 miles of overhead and 399 miles of underground facilities, with the majority of the new line extensions being underground lines within the residential subdivision growth occurring west of Billings. Yellowstone Valley Electric Cooperative has nineteen (19) distribution substations and two (2) transmission substations. Many of the distribution substations are being upgraded to accommodate the customer growth that YVEC is experiencing. Yellowstone Valley Electric Cooperative's utility plant has a "book value" of approximately \$52.3 million.

**POWER SUPPLY:**

Yellowstone Valley Electric Cooperative has approximately 11,000 member/ owners and provides electric energy and related service to approximately 15,000 meters. YVEC's annual revenue is currently \$14.5 million. In 2004 Yellowstone Valley Electric Cooperative will purchase approximately 225,000 mWhrs for resale to its owner/consumers. The blended rate for wholesale power and transmission services delivered to Yellowstone Valley's system in 2004 will be approximately \$0.03160 (31.6 mills) per kilowatt hour. Southern Montana Electric Generation and Transmission

Cooperative meets its power supply obligation to Yellowstone Valley Electric with a combination of purchases from the Bonneville Power Administration (BPA) and the Western Area Power Administration (Western). Southern Montana purchases approximately 80% of its member system requirements from BPA's with the remaining 20% being met with purchases from Western. The BPA power supply contract is for power generated on the Columbia River Basin. The power purchase rights provided for in the BPA contract begin to expire in 2008 and fully expire in 2011. The BPA contract is not subject to renewal. The Western power supply contract is for power generated in the upper Missouri Basin and expires in 2020. The Western power supply contract is subject to renewal. Southern Montana has long term network integrated transmission service (NITS) agreements with BPA's Transmission Business Line (TBL), NorthWestern Energy (NWE), and Western for the purpose of securing a transmission path for deliveries to Yellowstone Valley's contract points of delivery. Approximately 25% of Yellowstone Valley Electric's embedded cost for wholesale power is the cost for transmission service necessary for deliveries to YVEC's substation delivery points.

## **GROWTH**

The city of Billings drives much of YVEC's growth in terms of the number of customers it serves and the amount of wholesale power that is purchased. Billings is the largest city in Montana and has a current population of approximately 110,000 residents. With two universities, two major regional medical centers, regional transport hubs and regional wholesale and retail centers, Billings is maintaining its strong expansion and economic growth. Much of YVEC's growth has been and continues to be driven by the rapid expansion of Billings into YVEC's historic service area. Yellowstone Valley Electric Cooperative's strong growth will continue as the city of Billings and the surrounding area's economy and development continues to expand.

**YELLOWSTONE VALLEY ELECTRIC  
SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**  
Page 1 of 2

YEAR	SMALL			LARGE			IRRIGATION	OTHER SALES	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
	RESIDENTIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL					
1971	32,496	5,120	1,469	1,642	70	40,797	2,783	43,580			
1972	36,030	5,219	3,164	1,734	96	46,243	4,599	50,842			
1973	39,371	5,651	4,457	1,912	100	51,491	3,676	55,167			
1974	42,963	5,971	5,345	2,137	45	56,461	4,792	61,253			
1975	49,666	7,298	3,753	2,793	20	63,530	6,169	69,699			
1976	53,272	7,971	3,552	4,794	124	69,713	6,233	75,946			
1977	60,403	8,559	3,733	5,290	122	78,107	11,643	89,750			
1978	74,078	10,681	4,190	3,279	122	92,350	10,877	103,227			
1979	82,249	11,445	4,965	4,878	122	103,659	9,062	112,721			
1980	91,524	11,353	5,046	6,305	132	114,360	1,955	116,315			
1981	81,022	10,540	5,511	4,642	122	101,837	12,726	114,563			
1982	90,117	9,326	6,645	3,388	121	109,597	12,101	121,698			
1983	94,481	11,118	7,762	5,329	121	118,811	11,508	130,319			
1984	105,290	12,066	7,749	5,921	121	131,147	14,210	145,357			
1985	112,276	12,482	8,305	5,782	121	138,966	15,745	154,711			
1986	100,412	12,216	7,728	5,228	127	125,711	16,302	142,013			
1987	98,801	12,108	7,394	4,377	130	122,810	12,912	135,722			
1988	106,889	12,557	8,641	7,345	130	135,562	13,711	149,273			
1989	110,415	13,325	8,631	4,724	130	137,225	13,360	150,585			
1990	104,574	13,029	8,628	6,389	130	132,750	16,115	148,865			
1991	112,599	13,477	9,135	4,298	128	139,637	11,310	150,947			
1992	104,069	13,799	10,313	5,356	128	133,665	15,943	149,608			
1993	117,385	15,375	10,530	4,295	131	147,716	13,824	161,540			
1994	118,849	15,954	10,299	5,993	141	151,236	15,371	166,607			
1995	122,206	16,362	10,921	3,430	143	153,062	14,952	168,014			
1996	135,495	17,360	11,877	5,801	132	170,665	17,086	187,751			
1997*	132,328	17,797	11,715	4,839	133	166,812	15,209	182,021			
1998	128,915	18,185	11,973	6,836	132	166,041	15,629	181,670			
1999	131,220	17,973	13,098	6,266	133	168,690	13,410	182,100			
2000	138,339	19,174	13,375	7,395	133	178,416	22,252	200,668			

H I S T O R I C A L

**YELLOWSTONE VALLEY ELECTRIC  
SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**  
Page 2 of 2

YELLOWSTONE VALLEY ELECTRIC	YEAR	SMALL			LARGE			IRRIGATION	Other SALES	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
		RESIDENTIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL	COMMERCIAL					
HI	2001	141,723	19,411	13,213	6,830	133	181,310	16,843	198,153			
ST	2002	150,083	20,030	13,463	6,300	133	190,009	17,651	207,660			
ORY	2003	157,663	20,566	13,713	6,300	133	198,375	18,428	216,803			
P	2004	164,082	20,977	13,850	6,500	133	205,542	18,849	224,391			
R	2005	170,718	21,397	13,989	6,500	133	212,736	19,509	232,245			
O	2006	177,596	21,825	14,129	6,500	133	220,184	20,191	240,375			
J	2007	184,724	22,261	14,270	6,500	133	227,888	20,898	248,786			
E	2008	192,112	22,707	14,413	6,500	133	235,866	21,629	257,495			
C	2009	199,769	23,161	14,557	6,500	133	244,120	22,387	266,507			
T	2010	207,705	23,624	14,702	6,500	133	252,664	23,170	275,834			
E	2011	215,929	24,096	14,849	6,500	133	261,507	23,981	285,488			
D	2012	224,451	24,578	14,998	6,500	133	270,660	24,820	295,480			
	2013	233,282	25,070	15,148	6,500	133	280,132	25,689	305,821			
	2014	242,434	25,571	15,299	6,500	133	289,937	26,588	316,525			
	2015	251,918	26,083	15,452	6,500	133	300,086	27,519	327,605			
	2016	261,744	26,604	15,607	6,500	133	310,588	28,482	339,070			
	2017	271,927	27,136	15,763	6,500	133	321,459	29,479	350,938			
	2018	282,478	27,679	15,920	6,500	133	332,710	30,511	363,221			
Growth Rate	1971-2003	5.06%	4.44%	7.23%	4.29%	2.03%	5.06%	6.09%	5.14%			
Historic	1993-2003	2.99%	2.95%	2.68%	3.90%	0.15%	2.99%	2.34%	2.99%			
	1998-2003	3.95%	2.49%	2.75%	-1.62%	0.15%	3.62%	3.35%	3.60%			
Growth Rate	2003-2008	4.03%	2.00%	1.00%	0.63%	0.00%	3.52%	3.26%	3.50%			
Projected	2003-2016	3.98%	2.00%	1.00%	0.24%	0.00%	3.51%	3.41%	3.50%			
	2008-2013	3.96%	2.00%	1.00%	0.00%	0.00%	3.50%	3.50%	3.50%			
	2013-2018	3.90%	2.00%	1.00%	0.00%	0.00%	3.50%	3.50%	3.50%			
Historical Average Compound Growth Rates:	1971-2003			5.14%	1993-2003	2.99%	1998-2003	3.60%				
Projected Average Compound Growth Rates:	2004-2008			3.50%	2009-2013	3.50%	2014-2018	3.50%				

\*Purchases & Losses reflect a change to calendar billing by power supplier

**YELLOWSTONE VALLEY ELCTRIC  
SYSTEM DEMAND REQUIREMENTS BY YEAR (KW)**

**TABLE 2**  
Page 1 of 2

Year	January	February	March	April	May	June	July	August	September	October	November	December	REQUIREMENT
1982	33,584	34,253	25,477	23,332	20,234	18,341	18,756	19,815	22,329	19,470	24,277	28,714	288,582
1983	27,663	26,639	21,771	23,067	21,918	18,868	20,564	22,383	22,298	19,328	22,271	30,569	277,339
1984	41,782	36,446	23,848	23,771	24,663	20,540	22,888	22,853	22,708	23,007	30,004	36,202	328,712
1985	37,824	41,115	31,083	24,928	23,047	21,553	24,901	22,764	21,179	25,790	30,025	39,767	343,976
1986	29,583	36,146	34,076	26,184	22,398	22,323	23,987	22,047	23,229	21,983	35,115	31,339	328,410
1987	30,883	34,699	30,315	27,875	23,635	22,975	21,497	21,796	19,921	21,893	25,510	30,342	311,341
1988	37,896	36,440	28,603	27,040	23,879	24,057	25,439	24,765	23,486	20,578	26,493	31,218	329,894
1989	33,872	43,088	38,090	32,681	23,357	19,779	23,789	24,508	22,298	22,987	26,538	35,377	346,374
1990	41,436	36,966	37,799	30,219	24,140	22,678	24,596	25,235	24,089	21,773	25,796	33,536	348,263
1991	43,642	40,874	30,952	26,133	23,293	19,971	22,982	24,963	25,005	21,331	33,307	30,584	343,037
1992	34,289	32,199	28,611	25,856	23,962	23,615	26,112	24,118	22,093	23,045	25,819	33,863	323,592
1993	41,934	34,600	40,288	30,199	24,155	18,552	22,804	23,156	23,881	25,196	27,250	37,395	349,410
1994	36,546	41,450	38,498	27,935	24,524	21,513	26,516	29,041	26,672	24,777	27,749	35,457	360,678
1995	36,605	38,530	37,416	29,487	27,116	23,600	27,425	28,975	29,170	25,333	32,279	40,622	376,558
1996	37,870	48,940	42,052	36,987	27,243	26,307	29,919	30,968	31,176	24,198	31,759	38,933	406,352
1997*	48,189	43,579	37,043	32,561	26,862	31,087	29,105	30,323	29,797	27,192	33,202	35,167	404,107
1998	45,143	34,315	37,006	27,576	29,546	26,369	32,412	34,749	32,645	27,580	31,427	36,907	395,675
1999	46,194	36,988	31,939	30,749	28,726	27,168	34,066	36,653	32,806	28,402	28,387	37,072	399,150
2000	37,886	35,880	33,509	33,490	27,690	33,830	37,848	36,663	28,626	34,945	35,982	44,377	420,726

H I S T O R I C A L

\*Purchases & Losses reflect a change to calendar billing by power supplier

**YELLOWSTONE VALLEY ELCTRIC  
SYSTEM DEMAND REQUIREMENTS BY YEAR (KW)**

**TABLE 2**  
Page 2 of 2  
Total Annual  
REQUIREMENT

**YELLOWSTONE  
ELECTRIC**

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total Annual REQUIREMENT					
2001	35,357	39,875	30,865	29,354	29,358	30,910	34,727	38,405	34,519	28,550	35,542	37,414	404,876					
2002	39,249	41,359	40,733	35,812	30,147	39,795	44,837	38,642	35,879	37,763	37,146	40,339	461,701					
2003	42,492	48,956	40,163	32,116	36,654	40,503	48,661	47,575	38,006	35,994	41,990	43,261	496,371					
2004 ***	43,979	51,544	41,569	33,240	37,937	41,921	50,364	49,240	39,336	37,254	43,460	44,775	514,619					
2005	45,518	53,348	43,024	34,403	39,265	43,388	52,127	50,964	40,713	38,558	44,981	46,342	532,630					
2006	47,112	55,215	44,529	35,608	40,639	44,906	53,951	52,747	42,138	39,907	46,555	47,964	551,272					
2007	48,761	57,148	46,088	36,854	42,061	46,478	55,840	54,593	43,613	41,304	48,184	49,643	570,567					
2008	50,467	59,148	47,701	38,144	43,533	48,105	57,794	56,504	45,139	42,750	49,871	51,380	590,537					
2009	52,234	61,218	49,371	39,479	45,057	49,789	59,817	58,482	46,719	44,246	51,616	53,179	611,205					
2010	54,062	63,361	51,099	40,861	46,634	51,531	61,910	60,529	48,354	45,794	53,423	55,040	632,598					
2011	55,954	65,578	52,887	42,291	48,266	53,335	64,077	62,647	50,047	47,397	55,293	56,966	654,738					
2012	57,912	67,874	54,738	43,771	49,956	55,201	66,320	64,840	51,798	49,056	57,228	58,960	677,654					
2013	59,939	70,249	56,654	45,303	51,704	57,133	68,641	67,109	53,611	50,773	59,231	61,024	701,372					
2014	62,037	72,708	58,637	46,888	53,514	59,133	71,044	69,458	55,488	52,550	61,304	63,160	725,920					
2015	64,208	75,253	60,689	48,529	55,387	61,203	73,530	71,889	57,430	54,389	63,450	65,370	751,327					
2016	66,456	77,887	62,813	50,228	57,325	63,345	76,104	74,405	59,440	56,293	65,671	67,658	777,624					
2017	68,782	80,613	65,012	51,986	59,332	65,562	78,767	77,009	61,520	58,263	67,969	70,026	804,841					
2018	71,189	83,434	67,287	53,806	61,408	67,857	81,524	79,705	63,673	60,303	70,348	72,477	833,010					
Historical Average Compound Growth Rates:													1982-2003	2.49%	1993-2003	3.57%	1998-2003	4.49%
Projected Average Compound Growth Rates:													2004-2008	3.50%	2009-2013	3.50%	2014-2018	3.50%
*Purchases & Losses reflect a change to calendar billing by power supplier																		
*** Actual Demand																		



TABLE 3

YELLOWSTONE VALLEY ELECTRIC  
SYSTEM PURCHASES: DEMAND (kW) AND ENERGY (kWh) and Total System Load Factor

Total Demand REQUIREMENTS

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Year 2001													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	35,357	39,875	30,865	29,354	29,358	30,910	34,727	38,405	34,519	28,550	35,542	37,414	404,876
Energy	18,701,377	18,269,174	15,782,036	13,668,977	14,067,638	13,431,902	16,633,002	17,482,529	12,800,026	13,765,364	14,860,399	19,653,024	189,115,448
Load Factor	71.09%	68.18%	68.73%	64.67%	64.41%	60.35%	64.38%	61.18%	51.50%	64.81%	58.07%	70.60%	54.14%
Year 2002													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	39,249	41,359	40,733	35,812	30,147	39,795	44,837	38,642	35,879	37,763	37,146	40,339	461,701
Energy	19,826,900	16,697,942	19,580,582	14,711,946	14,014,319	15,380,540	20,406,299	15,918,471	13,909,003	15,822,681	17,222,650	20,707,545	204,198,878
Load Factor	67.90%	60.08%	64.61%	57.06%	62.48%	53.68%	61.17%	55.37%	53.84%	56.32%	64.40%	69.00%	51.99%
Year 2003													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	42,492	48,956	40,163	32,116	36,654	40,503	48,661	47,575	38,006	35,994	41,990	43,261	496,371
Energy	20,472,607	19,010,463	19,058,351	14,258,669	15,007,130	14,954,227	22,657,694	21,881,711	14,674,704	14,911,764	19,697,266	21,623,840	218,208,426
Load Factor	64.76%	57.79%	63.78%	61.66%	55.03%	51.28%	62.58%	61.82%	53.63%	55.68%	65.15%	67.18%	51.19%
Year 2004													
Days	31	29	31	30	31	30	31	31	30	31	30	31	366
Hours	744	696	744	720	744	720	744	744	720	744	720	744	8784
Demand	51,544	43,899	33,713	30,341	32,268	37,986	47,238	43,267					
Energy	23,547,231	19,445,029	16,991,750	14,649,213	15,845,149	15,549,153	20,025,065	18,525,631					
Load Factor	61.40%	63.64%	67.74%	67.06%	66.00%	56.85%	56.98%	57.55%					
Average Load Factor	66.29%	62.42%	66.22%	62.61%	61.98%	55.54%	61.28%	59.46%	52.99%	58.94%	62.54%	68.93%	52.44%

H I S T O R I C A L

YELLOWSTONE VALLEY ELECTRIC

SYSTEM PURCHASES: DEMAND (mW) AND ENERGY (mWh) and Total System Load Factor

TABLE 3  
Page 2 of 2

Total Demand  
REQUIREMENTS

	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand
P	2004	224,391	52.44%	49	2009	266,506	52.44%	58	2014	316,526	52.44%	69
R												
O	2005	232,245	52.44%	51	2010	275,834	52.44%	60	2015	327,604	52.44%	71
J												
E	2006	240,373	52.44%	52	2011	285,488	52.44%	62	2016	339,070	52.44%	74
C												
T	2007	248,786	52.44%	54	2012	295,480	52.44%	64	2017	350,938	52.44%	76
E												
D	2008	257,494	52.44%	56	2013	305,822	52.44%	67	2018	363,221	52.44%	79

**SYSTEM TOOLS**

## Section VII:

### **Southern Montana Electric – System Totals:**

- General Comments
- Member System Purchases: Demand and Energy - Actual
- Projected Requirements: Based on Average Annual Load Factor
- Projected Requirements: Based on Load Factor for 2003
- Total System Purchases Demand and Energy – Actual
- Total System Demand Delineated by Supplier - Projected

## 7.0 System Totals:

The following information represents a summation of the member system requirements for wholesale electric energy and related services. This information was derived from the individual member system requirements presented in Section 2 through Section 6 of this load forecast. A summary of the tables developed to give a graphic view of the major findings realized in the development of this load forecast is as follows:

**Bar Graph 1: System Requirements by Consumer Classification 2000-2015:**

This bar graph offers a view of a breakdown of the total system requirements by member classification for the period 2000-2015. As explained earlier in this load forecast, Southern Montana does expect a slight shift in the contribution the various member classifications will make to total system requirement during the period 2004-2008. This shift will be primarily driven by the installation of large pumping stations, development of the Bull Mountains coal mine, methane gas load, residential load growth on Yellowstone Valley Electric Cooperative's system and a modest amount of "fuel switching".

**Bar Graph 2: System Requirements Peak Demand 2004-2018:**

This bar graph offers a view of total system capacity requirements for the period 2004-2018. The slope of the growth curve represented by this graph depicts a rather modest increase in demand requirements once the aforementioned increases in load come on line during the 2004 -2008 period.

**Bar Graph 3: System Energy Requirements 2003-2015:**

This bar graph offers a view of total system energy requirements for the period 2003-2015. The slope of the growth curve represented by this graph depicts a rather modest increase in energy requirements once the aforementioned increases in load come on line during the 2004 -2008 period.

**Bar Graph 4: System Supply Source/Requirements for the period 2004-2018:**

This bar graph offers a view of source and projected supply needs for the period 2004-2018. The negative values for the period 2008 through 2018 represent the supply deficit facing Southern Montana in the wake of the expiration of Southern Montana's ability to secure 80% of its wholesale power supply from the Bonneville Power Administration post 2008.

**Table 1: System Energy Requirements:**

These spreadsheets offer a view of the historic and projected energy requirements for Southern Montana's member systems for the period 1971 through 2018.

**Table 2: System Demand Requirements:**

These spreadsheets offer a view of the historic and projected capacity requirements for Southern Montana's member systems for the period 1982 through 2018.

**Table 3: System Demand, Energy and Projected Load Factor:**

These spreadsheets offer a contemporary view of the historic demand and energy requirements for Southern Montana's member systems for the period 2000 through 2004. This information was used to develop an estimated value for projected load factor. The estimated value for load factor was used to develop the first of two scenario's projecting Southern Montana's system capacity requirement.

**Table 4: System Demand, Energy and Projected Load Factor:**

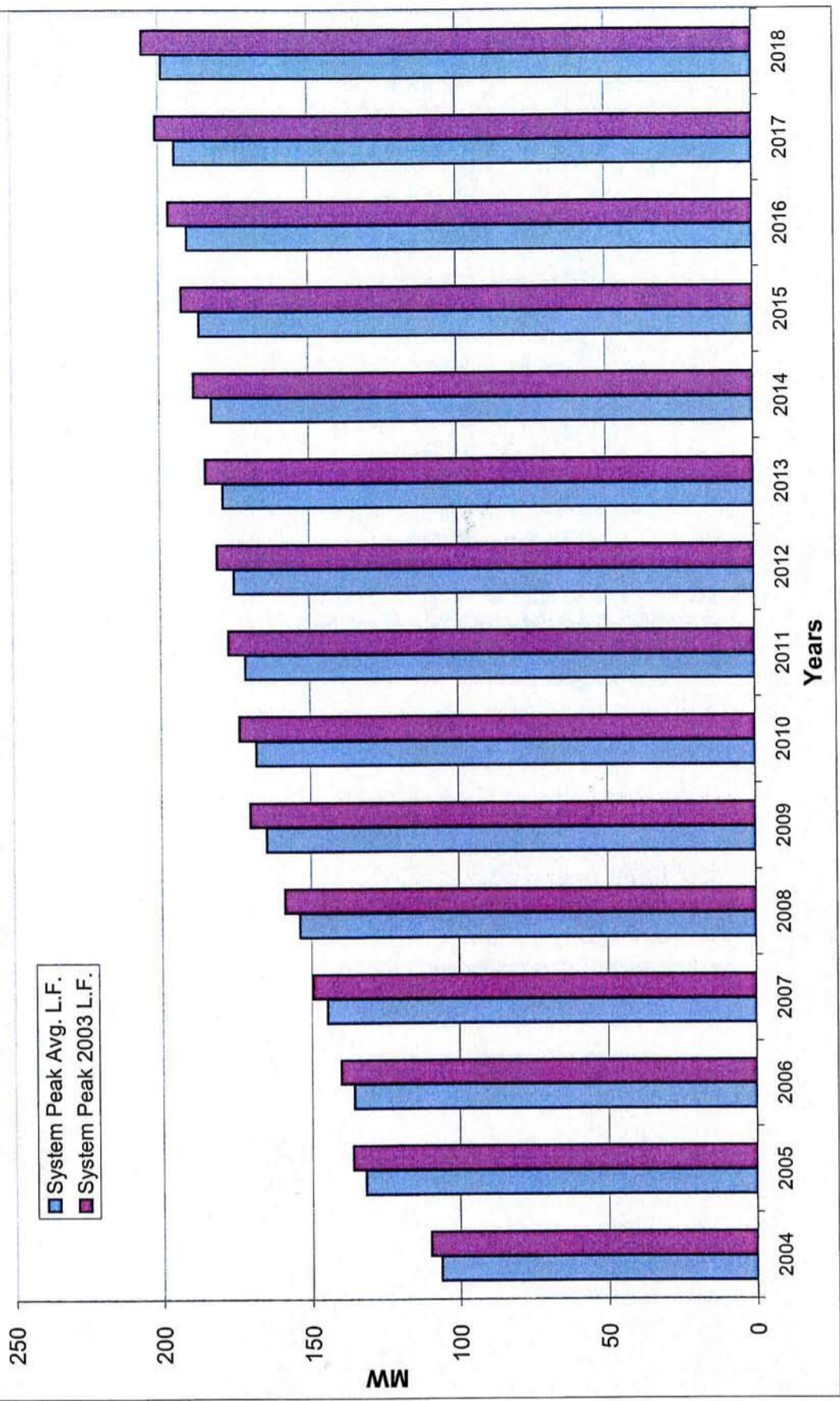
These spreadsheets offer a contemporary view of the historic demand and energy requirements for Southern Montana's member systems for the period 2000 through 2004. This information was used to develop an estimated value for projected load factor. The estimated value for load factor was used to develop the second of two scenario's projecting Southern Montana's system capacity requirement.

**Table 5: System Requirement – Peak Demand in mWa 2004-2018:**

This table offers a summary of Southern Montana's projected capacity requirements, near term source to meet this requirement and projected resource requirement.

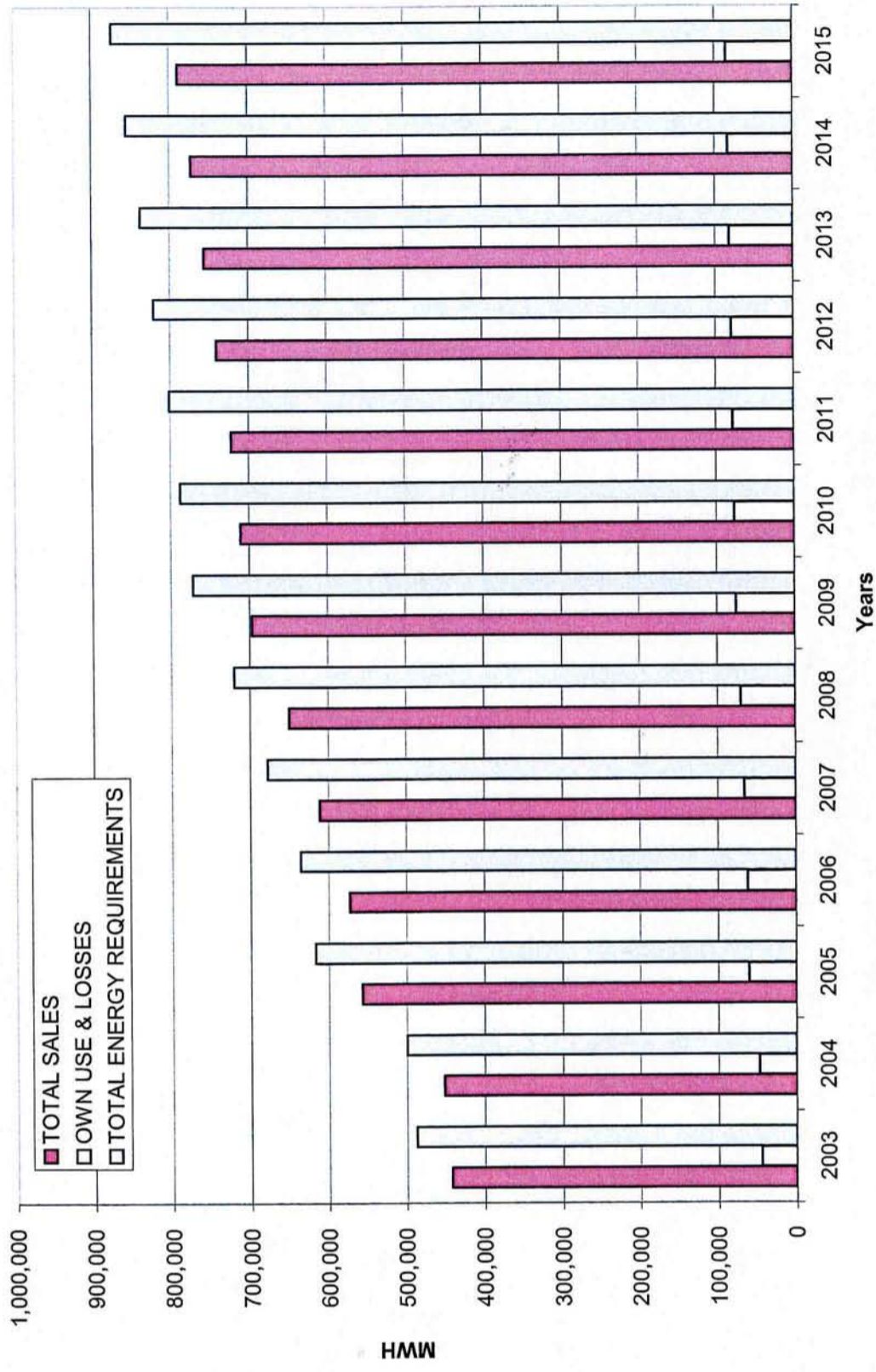


### Southern Montana Electric Generation & Transmission Cooperative System Requirements Peak Demand 2004-2018

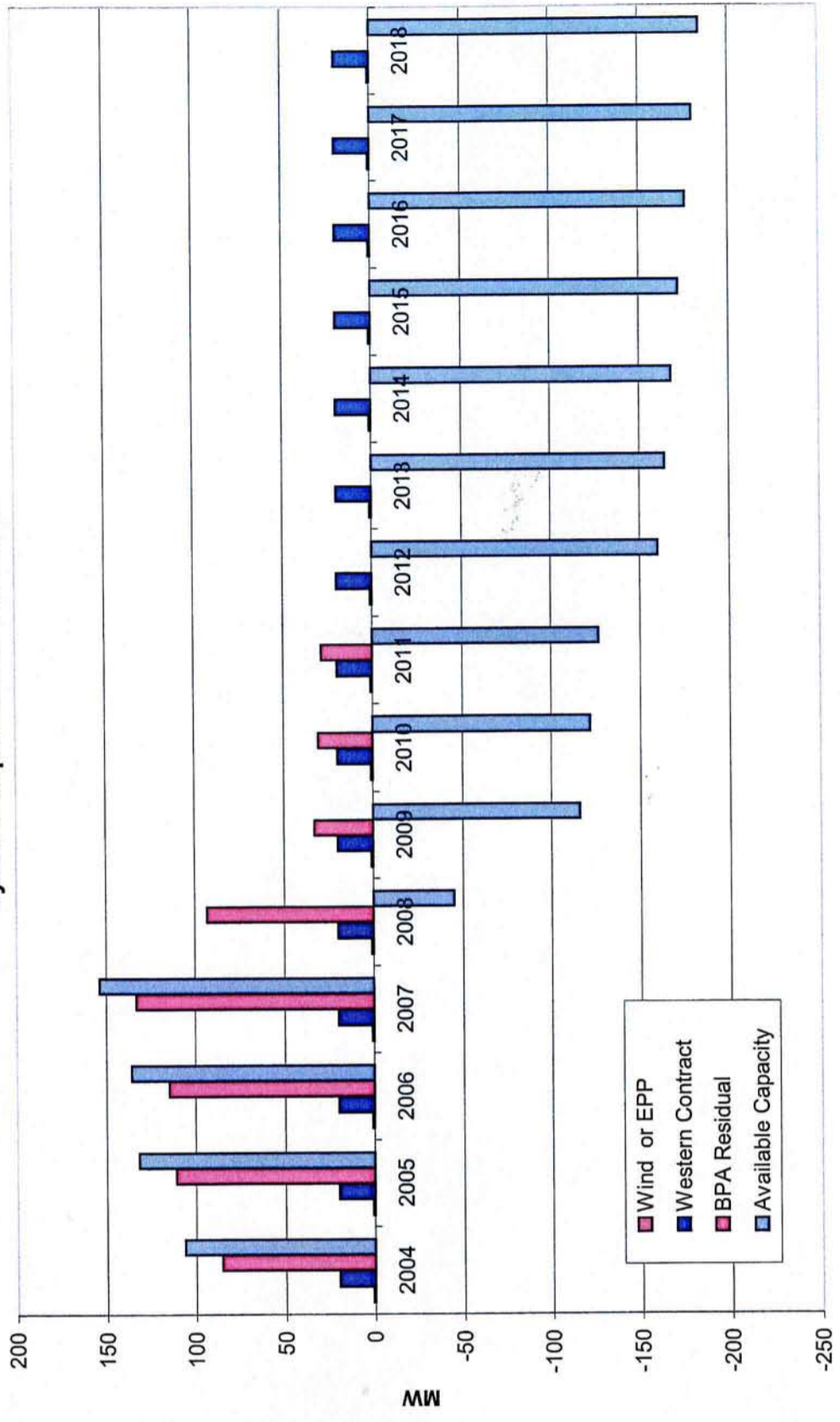




**Southern Montana Electric Generation & Transmission Cooperative  
System Energy Requirements 2003-2015**

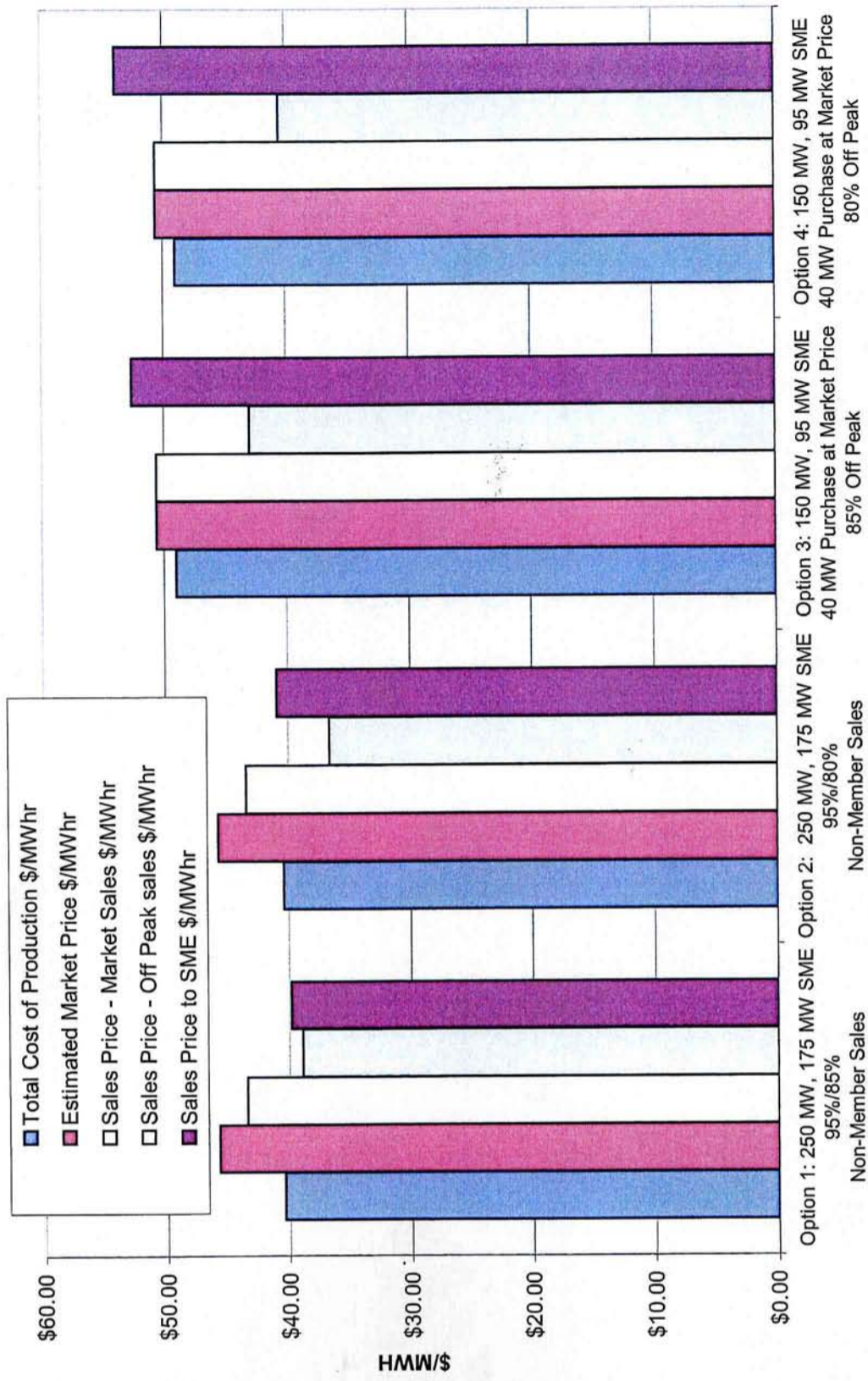


Southern Montana Electric Generation & Transmission Cooperative  
System Requirements 2004-2018



YEARS

**Southern Montana Electric Generation & Transmission Cooperative  
Comparative Cost Equity/Buy Options**



**Southern Montana Electric G&T**  
**SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

**TABLE 1**  
 Page 1 of 2

YEAR	SMALL			LARGE			OTHER SALES	TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
	RESIDENTIAL	COMMERCIAL	IRRIGATION	COMMERCIAL	IRRIGATION	OTHER SALES				
1971	109,356	16,564	9,765	4,413	14,880	154,978	16,425	171,403		
1972	117,999	17,094	11,321	4,384	14,560	165,358	18,753	184,111		
1973	122,973	17,502	12,578	6,354	14,665	174,072	17,067	191,139		
1974	131,396	18,139	14,254	7,364	14,668	185,821	19,850	205,671		
1975	151,678	21,720	13,774	7,507	14,487	209,166	23,185	232,351		
1976	155,401	23,092	13,981	13,992	14,287	220,753	24,661	245,414		
1977	169,966	24,043	14,005	16,145	14,276	238,435	33,681	272,116		
1978	196,032	27,708	18,211	9,894	12,226	264,071	36,519	300,590		
1979	205,922	33,155	27,958	15,458	9,682	292,175	29,135	321,310		
1980	218,421	27,566	22,599	21,152	10,835	300,573	29,327	329,900		
1981	207,370	26,638	22,725	17,495	11,516	285,744	37,107	322,851		
1982	236,607	27,297	22,535	14,249	9,905	310,593	22,522	333,115		
1983	234,166	29,342	23,372	19,157	9,819	315,856	34,863	350,719		
1984	257,002	32,553	25,462	21,468	10,092	346,577	39,368	385,945		
1985	267,915	32,953	24,394	20,743	9,953	355,958	37,872	393,830		
1986	239,275	28,884	22,965	17,154	10,124	318,402	35,928	354,330		
1987	233,036	28,800	22,537	14,388	9,794	308,555	31,792	340,347		
1988	251,459	30,163	28,736	23,341	9,854	343,553	35,927	379,480		
1989	260,912	31,588	32,463	15,156	9,933	350,052	33,854	383,906		
1990	247,713	30,014	31,759	20,438	9,905	339,829	38,581	378,410		
1991	264,596	30,804	34,885	13,112	9,872	353,269	34,425	387,694		
1992	245,294	31,353	37,951	17,182	9,681	341,461	36,101	377,562		
1993	276,505	33,200	39,821	11,002	9,858	370,386	36,657	407,043		
1994	275,146	33,675	40,870	17,617	9,067	376,375	41,254	417,629		
1995	281,661	34,046	40,267	12,869	8,055	376,898	38,222	415,120		
1996	308,347	35,180	44,942	17,036	9,029	414,534	42,616	457,150		
1997*	299,366	35,705	41,283	15,708	9,470	401,532	39,456	440,988		
1998	287,688	36,349	39,471	20,577	9,957	394,042	38,435	432,477		
1999	290,074	34,489	39,532	17,799	10,086	391,980	39,166	431,146		
2000	302,217	37,287	39,772	22,565	10,072	411,913	63,144	475,057		
2001	305,807	48,517	24,974	18,781	10,040	408,119	42,090	450,209		
2002	320,806	50,028	26,280	19,515	10,024	426,653	43,451	470,104		
2003	329,497	51,270	31,077	19,944	10,001	441,789	44,737	486,526		

H I S T O R I C A L

**Southern Montana Electric G&T**  
**SYSTEM ENERGY REQUIREMENTS BY CONSUMER CLASSIFICATION (mWh)**

TABLE 1  
Page 2 of 2

Southern Montana G&T	YEAR	SMALL			LARGE			Other		TOTAL SALES	OWN USE & LOSSES	Total ENERGY REQUIREMENTS
		RESIDENTIAL	COMMERCIAL	COMMERCIAL	IRRIGATION	SALES	SALES	SALES				
HI	1971	109,356	16,564	9,765	4,413	14,880	154,978	16,425	171,403			
ST	1993	276,505	33,779	39,590	12,700	9,858	372,432	34,611	407,043			
ORY	1998	287,688	36,349	39,471	20,577	9,957	394,042	38,435	432,477			
	2003	329,497	51,270	31,077	19,944	10,001	441,789	44,737	486,526			
P	2004	338,229	52,105	31,600	19,294	10,042	451,268	47,749	499,018			
R	2005	347,265	53,030	127,123	19,366	10,043	556,827	60,188	617,015			
O	2006	356,669	53,882	133,180	19,426	10,043	573,201	61,988	635,190			
J	2007	371,884	55,658	154,017	19,486	10,043	611,088	66,046	677,133			
E	2008	387,576	57,475	174,864	19,548	10,043	649,508	70,149	719,657			
C	2009	408,731	59,514	198,354	19,611	10,043	696,252	75,156	771,409			
T	2010	421,723	60,506	198,605	19,674	10,043	710,551	76,613	787,164			
E	2011	435,101	58,518	198,859	19,738	10,043	722,259	78,113	800,372			
D	2012	448,876	62,550	199,117	19,804	10,043	740,389	79,653	820,042			
	2013	463,062	63,603	199,376	19,870	10,043	755,953	81,237	837,190			
	2014	477,671	64,677	199,637	19,937	10,043	771,965	82,864	854,828			
	2015	492,718	65,771	199,901	20,005	10,043	788,438	84,537	872,975			
	2016	508,215	66,880	200,169	20,075	10,043	805,382	86,258	891,640			
	2017	524,191	68,016	200,439	20,145	10,043	822,834	88,028	910,861			
	2018	540,625	69,174	200,710	20,217	10,043	840,769	89,848	930,617			
<b>Growth Rate</b>	<b>YEAR</b>	<b>RESID.</b>	<b>SM COMM.</b>	<b>L. COMM.</b>	<b>IRRIG.</b>	<b>OTHER</b>	<b>T. SALES</b>	<b>USE &amp; LOSS</b>	<b>T. REQ.</b>			
Historic	1971-2003	3.72%	3.59%	3.68%	4.83%	-1.23%	3.33%	3.18%	3.31%			
	1993-2003	1.76%	2.10%	-1.20%	2.28%	0.07%	0.83%	1.51%	0.90%			
	1998-2003	2.75%	7.12%	-4.67%	-0.62%	0.09%	2.31%	3.08%	2.38%			
Projected	2003-2008	3.30%	2.30%	41.27%	-0.40%	0.00%	8.01%	9.41%	8.14%			
	2003-2016	3.39%	2.06%	15.40%	0.05%	0.00%	4.72%	5.18%	4.77%			
	2008-2013	3.62%	3.15%	2.66%	0.33%	0.00%	3.08%	2.98%	3.16%			
	2013-2018	3.15%	1.69%	0.13%	0.35%	0.00%	2.15%	2.04%	2.14%			
Historical												
% of Total	1971-2003	66.98%	9.21%	8.01%	3.85%	2.98%	91.04%	8.96%	100.00%			
Projected												
% of Total	2004-2018	56.11%	7.84%	22.50%	2.55%	1.30%	90.29%	9.71%	100.00%			

**Southern Montana Electric G&T**  
**SYSTEM DEMAND REQUIREMENTS BY YEAR (kW)**

**TABLE 2**  
Page 1 of 2  
Total Annual REQUIREMENT

Year	January	February	March	April	May	June	July	August	September	October	November	December	REQUIREMENT
1982	77,461	78,075	60,437	50,186	48,515	44,721	45,377	50,488	51,155	45,921	56,664	66,385	675,385
1983	65,414	62,353	50,852	54,911	50,782	48,350	52,690	53,965	51,080	48,892	51,480	70,596	661,365
1984	96,379	82,641	58,162	55,817	56,825	51,394	55,003	54,617	51,337	52,403	67,339	79,385	760,802
1985	83,906	91,300	70,358	56,399	51,626	54,269	57,797	51,909	48,552	55,569	63,533	87,214	770,432
1986	65,589	79,026	71,655	56,276	50,237	50,969	53,212	50,367	50,166	48,082	74,012	68,518	718,109
1987	67,333	73,502	65,147	60,410	51,423	53,074	50,635	49,256	43,773	47,671	54,042	66,344	682,610
1988	83,581	80,095	64,136	60,361	53,365	55,750	57,280	55,181	51,819	46,563	58,030	66,552	732,713
1989	76,443	92,251	81,866	70,908	52,200	46,971	56,142	54,931	51,610	49,866	58,357	75,957	767,502
1990	89,948	80,084	77,192	66,392	54,660	51,769	57,064	56,968	53,708	50,985	58,321	69,555	766,646
1991	95,964	85,994	68,470	58,826	52,221	44,470	51,476	57,283	55,536	48,296	73,724	68,840	761,100
1992	75,853	71,532	62,427	57,654	54,023	55,523	56,527	54,197	54,032	52,208	59,312	73,368	726,654
1993	92,810	76,580	86,292	67,353	54,958	49,493	53,234	50,897	53,899	54,403	62,805	82,560	785,284
1994	81,374	90,240	84,885	63,144	55,902	50,903	58,347	62,010	57,911	53,694	63,004	78,297	799,711
1995	81,918	83,415	82,158	66,232	58,782	52,874	59,255	62,543	61,866	55,944	72,270	86,479	823,716
1996	83,784	104,881	91,637	81,185	59,040	56,621	63,682	66,029	63,564	53,681	69,448	84,703	878,255
1997*	103,070	93,755	80,016	72,290	60,465	64,123	61,901	64,068	60,663	58,335	72,497	76,964	868,147
1998	95,113	74,973	80,893	61,912	56,357	59,001	68,665	72,084	64,279	57,392	67,130	77,630	835,429
1999	97,128	80,408	68,500	65,360	62,877	57,966	70,144	74,136	63,701	58,515	62,240	78,519	839,494
2000	80,848	77,923	72,024	68,378	62,124	70,669	78,144	74,098	61,283	65,278	79,331	94,274	884,374

H I S T O R I C A L

\*Purchases & Losses reflect a change to calendar billing by power supplier

**Southern Montana Electric G&T**  
**SYSTEM DEMAND REQUIREMENTS BY YEAR (KW)**

**TABLE 2**  
Page 2 of 2

Southern Montana G&T	Year	January	February	March	April	May	June	July	August	September	October	November	December	Total Annual REQUIREMENT			
		2001	2002	2003	2004 ***	2005	2006	2007	2008	2009	2010	2011	2012		2013	2014	2015
HI		84,629	94,394	74,044	67,070	68,473	68,644	76,045	80,336	70,587	65,981	80,498	86,977	917,378			
ST		91,685	95,554	94,884	82,912	68,781	81,032	90,864	78,480	70,734	83,370	83,994	89,094	1,011,384			
ORY		94,445	106,180	94,067	70,011	73,949	80,119	97,280	94,407	74,828	77,944	92,413	94,052	1,049,695			
P		100,023	114,325	95,988	72,046	76,914	82,750	100,083	96,443	77,216	80,050	94,379	96,449	1,086,666			
R		119,390	135,072	115,229	90,807	95,859	101,848	119,587	115,886	96,201	99,008	113,656	115,789	1,318,332			
O		123,165	139,251	118,897	93,907	99,129	105,267	123,444	119,665	99,508	102,329	117,338	119,532	1,361,433			
J		130,294	146,820	125,915	100,341	105,739	112,031	130,661	126,801	106,158	108,991	124,371	126,630	1,444,750			
E		139,580	156,784	135,087	108,913	114,494	120,945	140,041	136,097	114,953	117,798	133,560	135,885	1,554,138			
E		148,450	167,521	143,824	117,087	122,869	129,489	149,047	145,030	123,375	126,201	142,332	144,727	1,659,951			
C		151,491	170,981	146,728	119,412	125,403	132,197	152,231	148,139	125,958	128,762	145,273	147,741	1,694,316			
T		154,618	174,539	149,714	121,803	128,009	134,984	155,508	151,338	128,614	131,396	148,299	150,841	1,729,863			
E		157,833	178,199	152,784	124,260	130,690	137,851	158,882	154,632	131,347	134,105	151,411	154,029	1,766,022			
D		161,140	181,964	155,941	126,787	133,448	140,801	162,354	158,021	134,159	136,890	154,612	157,310	1,803,426			
		164,541	185,838	159,188	129,385	136,285	143,838	165,928	161,511	137,051	139,755	157,905	160,885	1,841,908			
		168,112	189,915	162,604	132,122	139,267	147,025	169,675	165,166	140,090	142,770	161,366	164,230	1,882,343			
		171,785	194,108	166,117	134,938	142,334	150,305	173,531	168,929	143,217	145,871	164,926	167,877	1,923,935			
		175,561	198,421	169,729	137,830	145,490	153,681	177,500	172,802	146,433	149,059	165,588	171,629	1,966,722			
		179,446	202,859	173,443	140,805	148,736	157,154	181,585	176,789	149,743	152,338	172,355	175,489	2,010,741			
Historical Average Compound Growth Rates:				1982-2003	2.12%	1993-2003	2.94%	1998-2003	4.57%								
Projected Average Compound Growth Rates:				2004-2008	9.36%	2009-2013	2.09%	2014-2018	2.22%								

\*Purchases & Losses reflect a change to calendar billing by power supplier

\*\*\* Actual Peak Demand

**SOUTHERN MONTANA ELECTRIC G&T**  
**SYSTEM PURCHASES: DEMAND (kW) AND ENERGY (kWh) and Total System Load Factor**  
 Load Factor as a Function of 2003 Load Factor

**TABLE 3**  
 Page 1 of 2

Total Demand REQUIREMENTS	Load Factor as a Function of 2003 Load Factor												Total
	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<b>Year 2001</b>													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	84,629	94,394	74,044	67,070	68,473	68,644	76,045	80,336	70,587	65,981	80,498	86,677	917,378
Energy	44,781,095	43,619,009	37,998,689	32,354,542	33,085,199	30,356,669	36,927,845	38,244,790	28,504,678	31,838,176	34,637,882	45,665,743	438,014,317
Load Factor	71.12%	68.76%	68.98%	67.00%	64.94%	61.42%	65.27%	63.99%	56.09%	64.86%	59.76%	70.81%	52.97%
<b>Year 2002</b>													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	91,685	95,554	94,884	82,912	68,781	81,032	90,864	78,480	70,734	83,370	83,994	89,094	1,011,384
Energy	46,388,477	39,516,035	46,912,469	34,830,791	32,497,270	34,832,931	43,749,551	35,049,409	30,110,594	35,924,208	39,069,847	46,375,501	465,257,083
Load Factor	68.00%	61.54%	66.45%	58.35%	63.50%	59.70%	64.72%	60.03%	59.12%	57.92%	64.60%	69.96%	55.58%
<b>Year 2003</b>													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	94,445	106,180	94,067	70,011	73,949	80,119	97,280	94,407	74,828	77,944	92,413	94,052	1,049,695
Energy	46,424,119	43,268,860	43,796,331	31,993,820	33,297,456	32,627,673	47,416,175	45,080,622	31,879,113	32,728,243	44,600,668	48,100,523	481,213,603
Load Factor	66.07%	60.64%	62.58%	63.47%	60.52%	56.56%	65.51%	64.18%	59.17%	56.44%	67.03%	68.74%	51.74%
<b>Year 2004</b>													
Days	31	29	31	30	31	30	31	31	30	31	30	31	366
Hours	744	696	744	720	744	720	744	744	720	744	720	744	8784
Demand	114,325	97,408	77,472	67,776	74,529	77,765	94,038	85,894					689,207
Energy	52,970,636	44,187,159	38,663,672	32,939,217	36,640,145	34,836,071	42,137,129	39,682,483					322,056,512
Load Factor	62.28%	65.18%	67.08%	67.50%	66.08%	62.22%	60.23%	62.10%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Average													
Load Factor	66.87%	64.03%	66.27%	64.08%	63.76%	59.98%	63.93%	62.57%	58.13%	59.74%	63.80%	69.84%	53.43%



**SOUTHERN MONTANA ELECTRIC G&T**  
**SYSTEM PURCHASES: DEMAND (mW) AND ENERGY (mWh) and Total System Load Factor**

Total Demand  
REQUIREMENTS

		Load Factor as a Function of 2003 Load Factor											
		Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand
P R O J E C T E D	2004	499,017	51.74%	110	2009	771,409	51.74%	170	2014	854,827	51.74%	189	
	2005	617,014	51.74%	136	2010	787,166	51.74%	174	2015	872,972	51.74%	193	
	2006	635,187	51.74%	140	2011	803,373	51.74%	177	2016	891,641	51.74%	197	
	2007	677,134	51.74%	149	2012	820,042	51.74%	181	2017	910,851	51.74%	201	
	2008	719,656	51.74%	159	2013	837,188	51.74%	185	2018	930,617	51.74%	205	

**SYSTEM PURCHASES: DEMAND (mW) AND ENERGY (mWh) - Less Western @ 20 mW**

Load Factor as a Function of 2003 Load Factor

		Load Factor as a Function of 2003 Load Factor											
		Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand
P R O J E C T E D	2004	405,151	51.74%	90	2009	677,800	51.74%	150	2014	761,218	51.74%	169	
	2005	523,405	51.74%	116	2010	693,557	51.74%	154	2015	779,362	51.74%	173	
	2006	541,578	51.74%	120	2011	709,763	51.74%	157	2016	798,032	51.74%	177	
	2007	583,525	51.74%	129	2012	726,433	51.74%	161	2017	817,242	51.74%	181	
	2008	626,046	51.74%	139	2013	743,579	51.74%	165	2018	837,008	51.74%	185	

**TABLE 4**  
Page 1 of 2

**Southern Montana Electric G&T**  
**SYSTEM PURCHASES: DEMAND (kW) AND ENERGY (kWh) and Total System Load Factor**

**Total Demand REQUIREMENTS**

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Year 2001</b>													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	84,629	94,394	74,044	67,070	68,473	68,644	76,045	80,336	70,587	65,981	80,498	86,677	917,378
Energy	44,781,095	43,619,009	37,998,689	32,354,542	33,085,199	30,356,669	36,927,845	38,244,790	28,504,678	31,838,176	34,637,882	45,665,743	438,014,317
Load Factor	71.12%	68.76%	68.98%	67.00%	64.94%	61.42%	65.27%	63.99%	56.09%	64.86%	59.76%	70.81%	52.97%
<b>Year 2002</b>													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	91,685	95,554	94,884	82,912	68,781	81,032	90,864	78,480	70,734	83,370	83,994	89,094	1,011,384
Energy	46,388,477	39,516,035	46,912,469	34,830,791	32,497,270	34,832,931	43,749,551	35,049,409	30,110,594	35,924,208	39,069,847	46,375,501	465,257,083
Load Factor	68.00%	61.54%	66.45%	58.35%	63.50%	59.70%	64.72%	60.03%	59.12%	57.92%	64.60%	69.96%	55.58%
<b>Year 2003</b>													
Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Hours	744	672	744	720	744	720	744	744	720	744	720	744	8760
Demand	94,445	106,180	94,067	70,011	73,949	80,119	97,280	94,407	74,828	77,944	92,413	94,052	1,049,695
Energy	46,424,119	43,268,860	43,796,331	31,993,820	33,297,456	32,627,673	47,416,175	45,080,622	31,879,113	32,728,243	44,600,668	48,100,523	481,213,603
Load Factor	66.07%	60.64%	62.58%	63.47%	60.52%	56.56%	65.51%	64.18%	59.17%	56.44%	67.03%	68.74%	51.74%
<b>Year 2004</b>													
Days	31	29	31	30	31	30	31	31	30	31	30	31	366
Hours	744	696	744	720	744	720	744	744	720	744	720	744	8784
Demand	114,325	97,408	77,472	67,776	74,529	77,765	94,038	85,894	0	0	0	0	123,866
Energy	52,970,636	44,187,159	38,663,672	32,939,217	36,640,145	34,836,071	42,137,129	39,682,483	0	0	0	0	60,414,197
Load Factor	62.28%	65.18%	67.08%	67.50%	66.08%	62.22%	60.23%	62.10%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Average													
Load Factor	66.87%	64.03%	66.27%	64.08%	63.76%	59.98%	63.93%	62.73%	58.13%	59.74%	63.80%	69.84%	53.43%

H I S T O R I C A L

**SOUTHERN MONTANA ELECTRIC G&T**  
**SYSTEM PURCHASES: DEMAND (mW) AND ENERGY (mWh) and Total System Load Factor**

**TABLE 4**  
Page 2 of 2

Total Demand  
REQUIREMENTS

	Load Factor as a Function of Annual Peak											
	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand
P	2004	499,017	53.43%	106	2009	771,409	53.43%	165	2014	854,827	53.43%	183
R												
O	2005	617,014	53.43%	132	2010	787,166	53.43%	168	2015	872,972	53.43%	187
J												
E	2006	635,187	53.43%	136	2011	803,373	53.43%	172	2016	891,641	53.43%	191
C												
T	2007	677,134	53.43%	145	2012	820,042	53.43%	175	2017	910,851	53.43%	195
E												
D	2008	719,656	53.43%	154	2013	837,188	53.43%	179	2018	930,617	53.43%	199

**SYSTEM PURCHASES: DEMAND (mW) AND ENERGY (mWh) - Less Western @ 20 mW**

	Load Factor as a Function of Annual Peak											
	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand	Year	Energy	Est. L.F.	Demand
P	2004	405,151	53.43%	86	2009	677,800	53.43%	145	2014	761,218	53.43%	163
R												
O	2005	523,405	53.43%	112	2010	693,557	53.43%	148	2015	779,362	53.43%	167
J												
E	2006	541,578	53.43%	116	2011	709,763	53.43%	152	2016	798,032	53.43%	171
C												
T	2007	583,525	53.43%	125	2012	726,433	53.43%	155	2017	817,242	53.43%	175
E												
D	2008	626,046	53.43%	134	2013	743,579	53.43%	159	2018	837,008	53.43%	179

**Southern Montana Electric G&T**  
**System Requirements: Peak Demand in mW 2004-2018**

Table 5

Year	System Peak		Western		Wind or		Option 1		System Peak		Western		Wind or		Option 2		BPA	
	Avg. L.F.	Unadj.	Unadj.	EPP	Less WAPA	2003 L.F.	Unadj.	EPP	Less WAPA	2003 L.F.	Unadj.	EPP	Less WAPA	Residual	Maximum Requir.			
2004	106	20	20	1	85	110	20	1	89	110	20	1	89		0			
2005	132	20	20	1	111	136	20	1	115	136	20	1	115		0			
2006	136	20	20	1	115	140	20	1	119	140	20	1	119		0			
2007	145	20	20	1	124	149	20	1	128	149	20	1	128		0			
2008	154	20	20	1	133	159	20	1	138	159	20	1	138	93	45			
2009	165	20	20	1	144	170	20	1	149	170	20	1	149	33	116			
2010	168	20	20	1	147	174	20	1	153	174	20	1	153	31	122			
2011	172	20	20	1	151	177	20	1	156	177	20	1	156	29	127			
2012	175	20	20	1	154	181	20	1	160	181	20	1	160	0	160			
2013	179	20	20	1	158	185	20	1	164	185	20	1	164	0	164			
2014	183	20	20	1	162	189	20	1	168	189	20	1	168	0	168			
2015	187	20	20	1	166	193	20	1	172	193	20	1	172	0	172			
2016	191	20	20	1	170	197	20	1	176	197	20	1	176	0	176			
2017	195	20	20	1	174	201	20	1	180	201	20	1	180	0	180			
2018	199	20	20	1	178	205	20	1	184	205	20	1	184	0	184			

Option 1: Peak Demand Projections based on average system load factor for period 2001-2004 less WAPA

Option 2: Peak Demand Projection based on annual system load factor for 2003 less WAPA

Maximum Requirement Represents Total Demand Requirement Less Residual BPA Purchase Rights

EPP: Environmentally Preferred Product

POWER EXP.

## Section VIII:

### **Southern Montana Electric G&T** **Wholesale Power Expenses:**

- General Comments
- Wholesale Power Expenses Extrapolated 2000-2004
- Member System Purchases: 2000-2004

## 8.0 Wholesale Power Expenses:

On 1 June 2004 Southern Montana became fully responsible for meeting the wholesale electric energy and related services needs of Beartooth Electric, Fergus Electric, Mid Yellowstone, Tongue River and Yellowstone Valley Electric Cooperatives. Prior that time the aforementioned distribution systems met their wholesale power needs with purchases from Central Montana Electric Power Cooperative (Central Montana). Over the course of the past several years the profound difference in regional wholesale supply contracts, member system transmission requirements, and general philosophical perspectives led the member systems of Central Montana to the conclusion that to avoid contentious disagreements between the member systems over rates and other financial issues it would be best to restructure Central Montana's membership.

At its December 2003 regular meeting, the Central Montana Board of Trustees accepted a recommendation that a committee be put in place to work through the details that would ultimately result in releasing the five southern member systems from their contractual relationship with Central Montana. To guide the committee through this process, a "Term Sheet" had been developed by representatives of the various regions and presented to the Central Montana Board as a template that could be followed in the assignment of contract rights, distribution of assets, employee responsibility, and resolution of the many issues that must take place prior to fully releasing the five southern member systems from Central Montana. The committee assigned this responsibility was referred to as the "Separation Workout Committee". In May 2004, the Separation Workout Committee reported to the Central Montana Board that its work was complete and the five southern members should no longer be considered members of Central Montana.

In an effort to build a database of necessary information essential to load forecasting, financial forecasts, budgets and the myriad of matters to which a utility must look to its records for guidance, Southern Montana has started the process of developing information on the past wholesale power and related services activities of its member systems. The first major installment of that effort exists in the collection of contracts that set the stage for Southern Montana to begin independent operation beginning 1 June 2004. In addition to the contracts and other such operating agreements, Southern Montana has also put in place a complete financial records system that fully accounts for all transfers of assets and liabilities to Southern Montana.

To continue the task of developing historic information essential to evaluating system operations, Southern Montana has taken the information on wholesale power purchases, system revenues, and member system demand and energy requirements and developed an "extrapolated" record of these activities for the member systems. The following spreadsheets offer an estimate of what the wholesale power and related transmission expenses would have been if the members had "statistically" existed as a separate entity for the period 2000 through 2004. Also included in this section is a list of actual revenues, demand and energy sales to these member systems structured as if they had been provided by Southern Montana.

Southern Montana Electric Generation and Transmission Cooperative  
Wholesale Power Expenses - Extrapolated  
December 2000

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
WAPA \$	281,042.98	257,504.44	235,760.82	198,559.33	225,112.66	251,209.15	284,546.06	271,506.21	183,687.22	207,239.66	274,766.69	319,155.29	\$ 2,990,090.51
Transm.	19,908.05	20,035.92	20,134.19	19,946.16	19,934.42	19,703.04	20,613.08	19,401.59	18,510.81	18,849.43	19,835.10	19,721.43	236,593.23
Basin	50,349.80	42,026.44	45,912.02	48,603.61	132,406.25	80,578.93	135,952.37	72,162.62	65,245.98	62,671.81	23,488.41	29,187.20	788,585.44
Basin Bill Credit - The above amount already reflects credit													
BPA	933,453.10	885,621.22	821,385.94	797,609.84	632,182.63	756,500.09	393,847.84	436,049.80	595,810.49	(2,585.18)	703,681.78	838,277.44	4,824,167.63
TBL	-	-	-	-	-	-	393,847.84	436,049.80	595,810.49	677,991.78	703,681.78	838,277.44	3,645,659.14
MPC/Ttx	-	-	-	-	-	13,379.32	55,654.94	51,154.13	53,958.86	41,717.43	41,799.50	60,183.34	317,847.51
MPC/Imb	-	-	-	-	-	40,998.31	138,667.48	138,671.19	133,937.02	137,016.49	143,840.57	142,866.92	875,998.00
BPA pmt	-	-	-	-	-	749.84	141,715.41	70,773.55	(609,395.50)	(567,760.29)	(157,432.47)	(794,345.76)	(1,915,695.22)
UMO/Pop	342.88	342.88	342.88	342.88	342.88	339.33	344.00	342.97	333.51	340.29	357.12	342.91	4,114.51
Total \$	1,285,096.80	1,205,530.90	1,123,535.85	1,065,061.82	1,009,978.84	1,163,458.01	1,171,341.17	1,060,062.06	442,088.39	575,481.43	1,050,336.70	615,388.77	\$ 11,767,360.74
<b>WAPA: Southern</b>													
kW	63,770	62,556	55,624	52,747	64,807	65,884	72,697	64,984	51,155	51,020	60,806	76,268	742,318
kWh	35,091,585	31,004,899	29,042,903	22,724,520	30,305,805	30,386,741	38,367,988	33,214,722	24,431,504	25,743,292	32,610,362	39,282,760	372,207,081
Basin: Southern													
kW	0	0	0	0	5,767	487,740	1,629	0	0	0	0	0	7,396
kWh	0	0	0	0	3,839,806	487,740	4,182,994	0	0	0	0	0	8,510,540
Sub Total													
kW	63,770	62,556	55,624	52,747	64,807	65,884	74,326	64,984	51,155	51,020	60,806	76,268	749,714
kWh	35,091,585	31,004,899	29,042,903	22,724,520	34,145,611	30,874,481	42,550,982	33,214,722	24,431,504	25,743,292	32,610,362	39,282,760	380,717,621
MPC (Imbalances appear as Energy purchase from MPC after 22 June 2000)													
kW	89,497	86,286	81,941	75,987	67,069	72,904	0	0	0	0	0	0	0
kWh	48,520,059	42,395,501	37,125,094	39,615,669	30,183,516	39,157,018	2,048,070	564,712	-11,999,726	-13,006,389	-1,923,507	-5,085,404	207,592,613
BPA													
kW	0	0	0	0	0	0	61,955	64,110	80,005	98,585	87,110	107,795	499,560
kWh	0	0	0	0	0	0	47,294,000	37,216,500	43,231,500	60,818,889	49,687,507	64,516,404	302,764,800
System Total: Southern													
kW	153,267	148,842	137,565	128,734	137,643	138,788	136,281	129,094	131,160	149,605	147,916	184,063	1,722,958
kWh	83,611,644	73,400,400	66,167,997	62,340,189	64,329,127	70,031,499	91,893,052	70,995,934	55,663,278	73,555,792	80,372,362	98,713,760	891,075,034
Blended Rate: For All Purchases													
mils/kWh	27.34	29.22	30.21	30.39	27.95	29.85	22.60	26.57	14.53	14.02	22.33	11.09	13.21
BPA Rate: Energy + Transmission													
mils/kWh	0.00	0.00	0.00	0.00	0.00	0.00	29.40	33.23	7.36	8.50	25.11	6.80	17.00
MPC Trans	33.39	36.26	38.30	35.01	36.16	33.81	122.46	222.46	-92.70	-78.10	-139.38	-277.31	



Southern Montana Electric Generation and Transmission Cooperative  
Annual Revenue by Member  
For 2000

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Beartooth	\$ 184,059.28	\$ 173,779.33	\$ 160,370.86	\$ 150,282.96	\$ 126,252.32	\$ 149,206.90	\$ 172,482.69	\$ 142,087.82	\$ 129,909.55	\$ 136,121.89	\$ 182,261.43	\$ 219,391.08	\$ 1,926,206.11
Fergus	279,668.04	248,320.58	241,743.34	216,639.21	211,635.04	219,627.03	222,645.83	185,645.01	174,043.19	194,623.67	251,377.31	303,214.02	2,749,182.27
Mid-Yellowstone	63,396.59	60,703.52	53,889.86	46,628.88	65,610.52	71,368.08	106,881.32	89,819.27	55,917.91	45,119.90	72,270.83	85,509.08	817,115.76
Tongue River	261,715.83	253,524.37	228,775.96	210,313.65	203,903.06	221,578.09	251,210.71	232,711.98	159,190.25	185,483.35	288,894.18	305,753.68	2,803,055.11
Yellowstone	567,098.28	523,564.51	464,693.47	463,656.37	406,811.29	502,105.85	609,809.03	521,003.34	399,796.39	445,990.63	540,724.08	615,073.93	6,060,327.17
<b>Total</b>	<b>\$ 1,355,938.02</b>	<b>\$ 1,259,892.31</b>	<b>\$ 1,149,473.49</b>	<b>\$ 1,087,521.07</b>	<b>\$ 1,014,212.23</b>	<b>\$ 1,163,885.95</b>	<b>\$ 1,363,029.58</b>	<b>\$ 1,171,267.42</b>	<b>\$ 918,857.29</b>	<b>\$ 1,007,339.44</b>	<b>\$ 1,335,527.83</b>	<b>\$ 1,528,941.79</b>	<b>\$ 14,355,886.42</b>

Southern Montana Electric Generation & Transmission Cooperative  
Annual Purchases by Member  
For 2000

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Beartooth	kWh 11,709	11,558	10,684	9,457	8,239	8,959	9,466	9,155	8,941	8,856	11,867	14,034	122,925
Fergus	kWh 592,116	5,268,035	4,848,123	4,962,395	3,613,236	4,839,187	5,948,578	4,432,399	3,855,736	4,216,849	5,643,012	6,878,959	55,098,625
Mid-Yellowstone	kWh 17,113	15,988	16,158	13,723	13,491	12,763	12,532	11,876	11,637	12,680	15,864	19,570	173,395
Tongue River	kWh 9,613,494	241,743	7,278,160	7,094,278	6,299,163	7,442,117	7,690,077	5,920,183	5,376,706	6,127,338	8,091,193	9,609,810	80,784,262
Yellowstone	kWh 4,786	4,769	4,570	3,794	5,100	5,846	7,515	6,603	4,573	3,486	5,072	6,139	62,253
<b>Total</b>	<b>kWh 2,539,071</b>	<b>2,290,463</b>	<b>1,779,310</b>	<b>1,660,634</b>	<b>2,306,554</b>	<b>2,290,671</b>	<b>3,972,037</b>	<b>3,238,775</b>	<b>1,856,956</b>	<b>1,568,684</b>	<b>2,689,074</b>	<b>3,134,088</b>	<b>29,326,317</b>
Beartooth	kWh 17,673	17,779	15,983	14,543	14,796	14,592	15,625	15,757	13,766	11,864	18,319	20,114	190,811
Fergus	kWh 9,381,559	8,589,960	7,797,105	7,281,320	5,963,588	7,567,809	9,017,054	7,910,819	5,955,954	6,545,007	10,254,688	10,596,774	96,861,637
Mid-Yellowstone	kWh 37,886	35,880	33,509	33,490	27,690	33,830	37,848	36,663	28,626	34,945	35,982	44,377	420,726
Tongue River	kWh 20,241,942	18,006,358	14,724,996	14,649,989	12,967,712	16,258,661	21,394,179	16,786,725	12,711,684	13,142,120	18,135,423	21,648,426	200,668,215
Yellowstone	kWh 89,167	85,974	80,904	75,007	69,316	75,990	82,986	80,054	67,543	71,831	87,104	104,234	970,110
<b>Total</b>	<b>kWh 42,368,182</b>	<b>34,396,559</b>	<b>36,427,694</b>	<b>35,648,616</b>	<b>31,150,253</b>	<b>38,398,445</b>	<b>48,021,925</b>	<b>38,288,901</b>	<b>29,757,036</b>	<b>31,599,998</b>	<b>44,813,390</b>	<b>51,868,057</b>	<b>462,739,056</b>

System Information:

Total Losses	63.86%	59.54%	60.52%	66.01%	60.40%	70.18%	77.78%	64.29%	61.19%	59.13%	71.46%	66.88%	64.11%
Load Factor													50.68%

note: imbalances would appear as losses and losses based on actual Central Montana losses

System L.F. based on annual peak

Southern Montana Electric Generation and Transmission Cooperative  
Wholesale Power Expenses - Extrapolated

December 2001

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
WAPA	\$ 286,756.80	\$ 293,945.56	\$ 234,770.80	\$ 211,082.35	\$ 209,895.05	\$ 225,163.58	\$ 255,552.29	\$ 265,270.22	\$ 200,822.60	\$ 205,086.31	\$ 230,059.22	\$ 276,692.30	\$ 2,895,077.08
Transm.	19,828.90	20,114.88	19,639.94	19,653.20	19,296.87	16,340.16	18,882.14	20,709.08	20,299.06	20,595.74	21,412.40	21,329.54	238,101.91
Basin	55,432.89	60,693.47	61,410.81	59,279.26	135,417.05	50,617.13	139,332.94	74,529.86	69,141.08	11,776.89	61,105.61	54,391.96	833,128.96
Basin Bill Credit - The above amount already reflects credit						(48,878.12)				(55,193.79)			
BPA	746,662.22	678,450.24	608,770.65	413,322.39	232,219.28	216,531.47	305,184.38	460,919.45	416,711.77	364,241.78	552,953.92	697,328.20	5,693,295.73
TBL	36,727.38	30,445.10	34,091.42	21,293.60	22,477.28	30,714.23	28,902.13	28,902.13	31,956.18	41,234.72	52,196.86	54,029.90	410,457.93
MPC/Tx	144,799.73	145,971.31	141,825.54	139,380.03	137,438.82	131,015.56	135,586.50	146,732.35	144,660.21	147,105.22	151,681.74	150,116.75	1,716,313.75
MPC/Imb	(631,545.91)	170,773.56	(310,252.26)	(77,063.39)	96,287.23	15,734.06	(410.55)	(8,762.77)	4,121.72	315.59	6,504.74	348.48	(733,949.51)
BPA pmt	573,883.80	(177,683.66)	275,316.24	72,033.13	(99,010.12)								644,539.38
UMO/Pop	347.17	346.11	334.14	329.90	321.54	303.78	311.63	331.94	324.25	324.07	330.95	331.13	3,936.60
Total	\$ 1,232,892.98	\$ 1,223,056.57	\$ 1,065,907.26	\$ 859,310.48	\$ 754,342.99	\$ 682,094.86	\$ 885,133.57	\$ 988,632.28	\$ 888,036.85	\$ 790,680.30	\$ 1,076,245.44	\$ 1,254,568.26	\$ 11,700,901.82

WAPA - Southern

kWh	33,468	36,539	29,165	26,108	27,820	31,009	33,263	33,708	27,598	25,246	31,046	33,933	368,904
kWh	18,040,994	17,705,815	15,424,885	13,003,189	11,943,839	12,839,802	15,293,087	16,589,820	11,630,321	12,699,979	13,978,733	18,311,382	177,461,844
Basin - Southern													
kWh	0	0	0	0	3,477	0	1,985	0	0	0	0	0	5,462
kWh	0	0	0	0	2,181,613	1,005,487	2,233,381	0	0	0	0	0	5,420,480
Sub Total													

MPC

kWh	33,468	36,539	29,165	26,108	31,297	31,009	35,248	33,708	27,598	25,246	31,046	33,933	374,366
kWh	18,040,994	17,705,815	15,424,885	13,003,189	14,125,452	13,845,289	17,526,467	16,589,820	11,630,321	12,699,979	13,978,733	18,311,382	182,882,325

MPC (Imbalances appear as Energy purchase from MPC after 22 June 2000)

kWh	0	0	0	0	0	0	0	0	0	0	0	0	0
kWh	-2,248,470	-132,103	-1,326,724	-218,483	725,468	265,132	-74,412	-254,811	154,790	26,926	-86,615	27,701	-3,141,601

BPA

kWh	50,338	49,389	42,482	32,326	28,293	26,409	31,288	37,834	31,170	31,553	39,845	44,417	445,345
kWh	27,377,857	24,405,054	21,749,421	15,930,071	15,737,118	13,936,892	16,777,290	19,014,537	13,924,428	16,284,469	18,439,745	25,020,527	228,597,406

System Total: Southern

kWh	83,806	85,927	71,647	58,434	59,590	57,419	66,536	71,543	58,768	56,798	70,891	78,351	819,710
kWh	43,170,381	41,978,766	35,847,581	28,714,777	30,588,038	28,047,313	34,229,344	35,349,545	25,709,540	29,011,374	32,331,863	43,359,609	408,338,130

Blended Rate: For All Purchases

mils/kWh	24.00	25.45	25.54	25.28	21.21	20.03	21.69	23.76	27.99	22.77	28.54	26.03	28.65
BPA Rate: Energy + Transmission	28.79	31.16	30.56	31.09	21.73	23.49	23.77	28.68	35.40	28.75	36.37	33.01	16.04

MPC Trans

mils/kWh	4.79	5.36	5.78	7.62	7.67	7.90	6.84	6.70	8.57	7.65	7.23	5.50	6.61
BPA	6.00	6.48	7.17	8.78	8.92	9.49	8.39	8.02	10.46	9.79	9.71	7.47	8.19

Note: Transmission Charges based on actual deliveries to Central Montana

Southern Montana Electric Generation and Transmission Cooperative

Annual Revenue by Member

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Beartooth	\$ 191,288.55	\$ 195,752.98	\$ 161,394.13	\$ 140,148.08	\$ 132,986.31	\$ 130,711.04	\$ 146,277.79	\$ 147,623.89	\$ 126,131.02	\$ 138,792.71	\$ 159,058.63	\$ 120,918.31	\$ 1,791,083.44
Fergus	249,880.72	265,574.66	227,632.27	202,477.45	190,618.20	172,216.63	175,512.44	179,229.60	163,719.81	189,266.62	210,809.14	147,974.21	2,374,911.75
Mid-Yellowstone	67,655.53	70,592.70	57,421.89	45,343.82	72,001.43	63,047.90	90,904.62	88,060.26	45,494.02	46,620.86	54,831.90	31,926.81	733,901.74
Tongue River	260,284.95	257,182.76	216,575.60	178,707.93	181,471.87	165,288.98	197,768.27	201,058.41	164,003.89	177,402.21	205,649.55	140,328.54	2,345,722.96
Yellowstone	546,928.67	566,856.45	467,822.71	421,188.64	428,271.10	426,489.82	506,463.67	543,955.95	437,333.61	417,987.19	480,055.96	323,336.82	5,566,690.59
Total	\$ 1,316,038.42	\$ 1,355,959.55	\$ 1,130,846.60	\$ 987,865.92	\$ 1,005,348.91	\$ 957,754.37	\$ 1,116,926.79	\$ 1,159,928.11	\$ 936,682.35	\$ 970,069.59	\$ 1,110,405.18	\$ 764,484.69	\$ 12,812,310.48

TRG 7/26/04

Southern Montana Electric Generation & Transmission Cooperative

Annual Purchases by Member

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Beartooth	kW 11,624	13,191	10,051	9,077	8,601	8,750	9,262	9,498	8,646	9,036	11,000	12,818	121,554
Fergus	kWh 6,208,942	5,907,095	5,154,625	4,355,690	4,137,298	3,964,400	4,619,295	4,609,819	3,755,637	4,297,436	4,702,673	6,325,508	58,038,418
Mid-Yellowstone	kWh 8,219,747	8,283,011	7,472,228	6,482,066	6,127,442	5,441,947	5,709,393	5,747,868	5,091,491	5,977,294	6,399,860	8,331,499	79,283,846
Tongue River	kWh 2,529,447	2,471,554	2,088,952	1,619,672	2,381,523	1,853,788	3,051,997	3,125,933	1,450,636	1,647,750	1,842,333	2,451,322	26,514,907
Yellowstone	kWh 9,121,582	8,688,175	7,500,848	6,228,137	6,371,298	5,664,632	6,914,158	7,278,641	5,406,888	6,150,332	6,832,617	8,904,390	85,061,698
Total	kWh 18,701,377	18,269,174	15,782,036	13,668,977	14,067,638	13,431,902	16,633,002	17,482,529	12,800,026	13,765,364	14,860,399	19,653,024	189,115,448
Total	kWh 84,629	94,394	74,044	67,070	68,473	68,644	76,045	80,336	70,587	65,981	80,498	86,677	917,378
Total	44,781,095	43,619,009	37,998,689	32,354,542	33,085,199	30,356,669	36,927,845	38,244,790	28,504,678	31,838,176	34,637,882	45,665,743	438,014,317

System Information:

Total Losses	6.50%	2.24%	1.76%	-3.60%	-0.42%	0.56%	0.58%	0.19%	0.28%	0.76%	1.36%	1.63%	0.72%
Load Factor	71.12%	68.76%	68.86%	67.00%	64.94%	61.42%	65.27%	63.98%	56.09%	64.86%	59.76%	70.81%	64.18%

note: imbalances would appear as losses and losses based on actual Central Montana losses

System L.F. based on annual peak

Southern Montana Electric Generation and Transmission Cooperative

Wholesale Power Expenses - Extrapolated

December 2002

TRG 8/10/04

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
WAPA	\$ 292,000.77	\$ 275,480.49	\$ 277,852.93	\$ 242,636.41	\$ 208,135.44	\$ 240,289.32	\$ 257,849.53	\$ 245,464.21	\$ 206,037.86	\$ 210,694.29	\$ 251,072.46	\$ 213,111.91	\$ 2,920,625.60
Transm.	22,483.49	22,576.33	22,718.36	22,702.98	22,133.11	22,103.77	21,326.03	20,726.68	20,616.57	21,403.92	21,446.37	16,315.05	256,552.67
Basin	53,350.49	56,699.08	124,833.63	62,830.38	82,882.35	108,414.44	199,711.58	70,939.79	62,353.82	106,770.02	58,486.61	62,003.70	1,049,275.91
Basin Bill Credit - The above amount already reflects credit										(25,513.06)			
BPA	654,355.27	524,984.64	521,723.73	325,688.01	272,364.76	343,286.63	553,059.42	607,122.59	457,179.26	416,446.92	585,645.84	534,137.12	5,795,994.19
TBL	96,715.43	79,391.64	88,603.63	67,816.66	70,468.39	72,671.09	78,071.16	62,164.33	54,621.09	79,394.57	81,950.19	73,221.40	905,089.57
NWE/Trx	154,706.68	153,713.82	154,169.22	156,999.05	151,657.64	152,666.43	149,972.54	147,481.53	148,240.54	154,632.73	154,886.77	118,130.75	1,797,257.71
NWE/Imb	745.97	2,266.14	9,990.21	7,045.19	10,736.41	5,545.44	1,844.31	1,491.53	2,063.45	1,198.42	2,260.99	(7,191.85)	37,996.20
WAPA pmi									228.64				228.64
UMO/Pop	340.89	340.42	335.68	329.00	322.06	321.69	315.55	308.51	309.32	321.62	324.80	246.47	3,816.02
Total	\$ 1,274,698.99	\$ 1,115,452.55	\$ 1,200,227.40	\$ 886,047.68	\$ 818,700.15	\$ 945,298.80	\$ 1,262,150.12	\$ 1,155,699.17	\$ 951,650.57	\$ 990,862.48	\$ 1,156,074.04	\$ 1,009,974.57	\$ 12,766,836.51

WAPA: Less Fort Peck

kW	36,395	37,882	38,854	33,749	27,750	32,822	34,638	34,087	28,935	27,672	32,835	34,681	400,300
kWh	18,462,461	16,161,997	17,124,605	14,070,904	12,280,820	13,979,305	15,716,582	15,586,604	12,488,533	12,881,802	15,678,095	18,556,096	182,987,803
Basin	0	0	1,921	0	0	2,185	5,768	0	0	0	0	0	15,121
kWh	0	0	2,765,437	0	707,934	1,178,083	4,891,826	0	0	0	0	0	11,595,744
Sub Total	36,395	37,882	38,854	33,749	27,750	32,822	34,638	34,087	28,935	27,672	32,835	34,681	415,421
kWh	18,462,461	16,161,997	19,890,042	14,070,904	12,988,774	15,157,388	20,608,408	15,586,604	12,488,533	14,934,247	15,678,095	18,556,096	194,583,548

NWE (Imbalances appear as Energy purchase from NWE after 22 June 2000)

kW	-5,690	37,536	335,404	369,660	556,562	824,225	152,498	129,301	73,532	-18,263	-90,164	374,619	2,739,222
kWh	47,371	47,428	45,978	37,015	30,954	33,088	38,863	32,923	29,641	41,760	40,476	42,511	468,009
BPA	26,988,255	22,240,971	25,467,666	18,713,272	17,517,714	17,536,075	21,510,242	17,977,141	15,936,866	19,575,837	22,087,699	26,794,079	252,345,817
System Total	83,766	85,310	86,753	70,764	58,705	68,095	79,269	67,010	58,575	74,678	73,312	77,193	883,430
kWh	45,445,026	38,440,504	45,693,113	33,153,836	31,063,050	33,517,689	42,271,149	33,693,046	28,498,931	34,491,821	37,675,629	45,724,794	449,668,587

Blended Rate: For All Purchases

mils/kWh	25.50	25.89	22.22	22.93	23.09	25.12	26.88	31.24	29.50	25.58	27.54	26.63	26.07
BPA Rate: Energy + Transmission	31.58	31.64	27.72	26.33	26.46	30.45	33.84	43.70	38.77	30.87	35.05	34.18	32.52

NWE Trans

mils/kWh	5.39	6.40	5.53	7.19	7.94	8.11	6.48	7.88	8.68	7.33	6.58	5.62	6.81
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NWE+BPA

mils/kWh	8.76	9.70	8.81	10.88	11.63	11.90	9.86	11.20	11.87	11.09	10.07	9.10	10.25
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TRX and Energy Charges Based on Total Central Montana Purchases

Southern Montana Electric Generation and Transmission Cooperative  
Annual Revenue by Member - Southern Montana

Member System	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Southern Region	\$ 204,063.21	\$ 187,570.37	\$ 206,038.43	\$ 162,421.29	\$ 141,350.49	\$ 144,451.51	\$ 166,312.07	\$ 144,840.13	\$ 130,163.91	\$ 162,191.75	\$ 169,437.50	\$ 111,859.11	\$ 1,930,699.77
Beartooth	\$ 264,003.96	\$ 251,472.52	\$ 285,901.54	\$ 228,424.44	\$ 191,466.33	\$ 181,423.75	\$ 187,086.22	\$ 167,153.71	\$ 165,148.66	\$ 223,564.75	\$ 232,871.25	\$ 145,706.14	\$ 2,524,223.27
Fergus	\$ 70,598.57	\$ 63,012.13	\$ 72,157.23	\$ 54,283.54	\$ 46,782.75	\$ 79,240.48	\$ 111,683.19	\$ 85,413.52	\$ 47,321.87	\$ 52,112.57	\$ 57,556.56	\$ 33,367.50	\$ 773,529.91
Mid-Yellowstone	\$ 259,375.70	\$ 239,759.38	\$ 259,574.41	\$ 205,399.52	\$ 187,674.07	\$ 191,632.35	\$ 226,756.96	\$ 176,474.11	\$ 156,322.77	\$ 202,383.58	\$ 219,779.80	\$ 140,721.03	\$ 2,465,833.68
Yellowstone	\$ 590,613.62	\$ 548,097.72	\$ 594,945.60	\$ 478,446.95	\$ 432,143.48	\$ 515,226.70	\$ 634,982.83	\$ 517,424.66	\$ 465,019.65	\$ 510,324.23	\$ 531,311.19	\$ 349,458.82	\$ 6,167,995.45
Regional Total	\$ 1,388,655.06	\$ 1,289,912.12	\$ 1,418,617.21	\$ 1,128,975.74	\$ 999,417.12	\$ 1,111,974.79	\$ 1,326,801.27	\$ 1,091,306.13	\$ 963,976.86	\$ 1,150,576.88	\$ 1,210,956.30	\$ 781,112.60	\$ 13,862,282.08

Annual Purchases by Member - Southern Montana

Member System	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Southern Region	12,938	13,059	13,301	11,609	9,336	9,345	10,744	9,503	8,680	11,424	11,132	12,181	133,252
Beartooth	6,438,183	5,515,569	6,418,520	4,672,294	4,330,610	4,493,134	5,178,352	4,459,413	3,959,313	4,723,821	5,211,502	6,165,142	61,565,853
Fergus	16,705	17,752	18,098	15,971	12,407	11,546	11,871	10,623	10,666	15,460	15,450	15,608	172,157
Mid-Yellowstone	8,482,388	7,445,354	9,183,394	6,816,062	6,051,138	5,806,241	5,999,655	5,354,663	5,231,670	6,730,088	7,235,593	8,279,373	82,615,619
Yellowstone	5,176	5,255	5,249	4,428	3,557	6,409	7,980	6,514	3,950	4,137	4,439	4,746	61,840
Regional Total	2,550,528	2,057,434	2,621,069	1,806,591	1,646,313	2,656,061	4,106,572	2,998,921	1,543,913	1,773,616	2,003,782	2,438,773	28,203,573
Tongue River	17,617	18,129	17,503	15,092	13,334	13,937	15,432	13,198	11,559	14,586	15,827	16,220	182,434
Yellowstone	9,090,478	7,799,736	9,108,904	6,823,898	6,454,890	6,496,955	8,058,673	6,317,941	5,466,695	6,874,002	7,396,320	8,784,668	88,673,160
Regional Total	19,826,900	16,697,942	19,580,582	14,711,946	14,014,319	15,380,540	20,406,299	15,918,471	13,909,003	15,822,681	17,222,650	20,707,545	204,198,878
Reg. Total	91,685	95,554	94,884	82,912	68,781	81,032	90,864	78,480	70,734	83,370	83,994	89,094	1,011,384
Reg. Total	46,388,477	39,516,035	46,912,469	34,830,791	32,497,270	34,832,931	43,749,551	35,049,409	30,110,594	35,924,208	39,069,847	46,375,501	465,257,085

System Information: Total System Including Northern Systems  
 Total Losses 1.57% 1.29%  
 Load Factor 68.00% 61.54%

System L.F. based on annual peak  
 0.84% 0.43% 1.56% 0.97% 0.97% 0.98% 0.97% 1.01% 1.18% 1.18%  
 57.92% 59.12% 60.03% 64.72% 63.50% 58.70% 64.72% 63.50% 58.35% 58.35%  
 2.81% 1.34% 1.19% 1.19% 1.34% 1.34%  
 61.85% 61.85% 69.96% 69.96% 69.96% 69.96% 69.96% 69.96% 69.96% 69.96%  
 55.58% 55.58%

Southern Montana Electric Generation and Transmission Cooperative

Wholesale Power Expenses - Extrapolated

December 2003

TRG 8/10/04

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
WAPA	\$ 301,411.47	\$ 290,076.32	\$ 273,253.60	\$ 211,251.65	\$ 205,342.70	\$ 221,198.71	\$ 253,638.60	\$ 271,559.92	\$ 214,614.73	\$ 207,737.40	\$ 281,314.89	\$ 293,222.00	\$ 3,024,621.99
Transm.	20,635.87	23,515.81	21,680.51	20,777.52	20,563.45	19,563.45	20,653.91	21,281.57	20,475.24	21,088.46	21,749.98	22,001.12	253,986.88
Basin	68,326.82	72,487.03	100,465.53	63,367.10	106,474.15	117,489.79	251,354.26	141,137.28	76,234.64	48,348.10	28,708.48	18,574.37	1,092,967.54
Basin Bill Credit - The above amount already reflects credit								5,496.55	4,593.27	4,446.39	44,930.01	60,376.66	130,083.62
BPA	648,171.67	591,147.71	524,575.76	303,987.40	297,261.00	347,688.11	608,225.56	804,873.01	522,130.25	403,256.70	697,738.13	759,380.91	6,508,436.22
TBL	75,643.79	89,200.84	81,423.14	69,391.87	69,146.79	56,292.04	84,595.48	83,539.53	70,218.55	80,716.46	92,944.25	90,061.59	943,174.33
NWE/Trx	159,244.37	163,367.21	159,824.48	152,956.60	153,360.98	145,565.66	153,312.29	156,213.40	151,755.80	155,369.44	160,724.46	162,594.08	1,874,288.78
NWE/Imb	(16,017.80)	(25,667.86)	(16,897.25)	(2,617.52)	7,307.32	5,398.61	64.08	(13,249.45)	(19,611.14)	(15,701.36)	(7,650.71)	(18,343.09)	(122,986.17)
WAPA									227.41				227.41
UMO/Pop	331.94	337.52	330.13	317.37	314.24	297.69	310.81	321.26	307.66	317.68	326.26	328.82	3,841.38
Total	\$ 1,257,748.14	\$ 1,204,464.58	\$ 1,144,655.89	\$ 819,431.99	\$ 859,770.63	\$ 913,494.06	\$ 1,362,336.73	\$ 1,460,757.07	\$ 1,031,857.41	\$ 897,058.28	\$ 1,236,948.76	\$ 1,276,414.46	\$ 13,464,937.99

WAPA - Less Fort Peck

kW	38,083	40,286	36,599	28,169	28,369	34,313	34,545	35,884	29,849	27,747	35,943	36,290	406,078
kWh	19,205,030	17,305,372	16,955,691	12,732,109	11,993,107	13,813,605	15,609,661	17,849,431	13,082,025	12,600,250	17,838,542	19,032,433	188,017,255
Basin													
kW	0	0	2,251	0	1,198	2,505	7,767	4,640	0	3,196	0	0	21,557
kWh	0	0	797,157	0	931,939	1,159,604	6,239,919	1,739,355	0	308,973	20,463	0	11,197,410
Sub Total													
kW	38,083	40,286	38,851	28,169	29,567	36,818	42,312	40,525	29,849	30,942	35,943	36,290	427,635
kWh	19,205,030	17,305,372	17,752,848	12,732,109	12,925,046	14,973,209	21,849,580	19,588,786	13,082,025	12,909,223	17,859,005	19,032,433	199,214,665
NWE (Imbalances appear as Energy purchase from NWE after 22 June 2000)													
kW	-729	0	0	0	0	0	0	0	0	0	0	0	-729
kWh	-524,474	-495,437	-508,532	-64,633	210,759	83,106	28,444	438,276	547,185	-481,521	-302,496	0	-1,069,323
BPA													
kW	52,301	56,390	54,706	38,150	37,539	38,523	49,114	45,231	40,200	45,659	51,304	51,393	56,390
kWh	26,591,890	25,327,033	25,207,367	18,136,405	18,589,387	17,354,890	24,374,342	24,380,543	17,900,237	18,931,832	25,728,667	28,161,931	270,684,523
System Total													
kW	89,654	96,676	93,556	66,319	67,106	75,341	91,426	85,756	70,049	76,602	87,247	87,683	96,676
kWh	45,272,445	42,136,968	42,451,682	30,803,881	31,725,192	32,411,205	46,252,367	44,407,604	31,529,447	31,359,533	43,285,175	47,194,364	468,829,865
Blended Rate: For All CM Purchases													
mils/kWh	24.82	25.46	25.97	23.35	23.36	24.16	26.62	30.50	29.08	24.86	26.51	25.52	25.79
BPA Rate: Energy + Transmission													
mils/kWh	30.63	29.97	27.64	25.59	25.93	28.31	32.34	40.87	37.78	30.09	34.53	33.49	31.71
NWE Trans	5.63	5.98	5.85	7.82	7.54	7.45	5.86	6.19	7.91	7.50	5.88	5.48	6.48
NWE+BPA	8.30	9.25	8.91	11.32	10.95	10.49	9.09	9.50	11.57	11.39	9.28	8.51	9.73

TRX and Energy Charges Based on Total Central Montana Purchases

Southern Montana Electric Generation and Transmission Cooperative  
Annual Revenue by Member: Southern Systems

For 2003

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Beartooth	\$ 195,468.99	\$ 200,759.69	\$ 193,839.41	\$ 138,608.32	\$ 144,193.62	\$ 144,610.25	\$ 178,660.44	\$ 164,320.48	\$ 136,364.69	\$ 145,280.20	\$ 193,042.69	\$ 203,768.56	\$ 2,038,917.34
Fergus	264,290.01	268,598.53	270,974.49	198,978.93	190,432.23	180,147.22	214,807.13	196,361.37	178,247.99	202,857.18	261,762.59	266,271.70	2,693,749.37
Mid-Yellowstone	68,235.16	65,208.34	66,945.79	44,258.15	41,979.73	59,165.91	99,614.77	93,743.57	41,949.32	44,520.73	64,056.00	66,307.77	755,985.24
Tongue River	256,539.40	253,111.93	244,280.03	169,538.00	180,152.84	173,852.12	242,893.56	233,395.80	173,964.66	183,747.99	238,887.20	251,291.26	2,601,654.79
Yellowstone	621,550.65	635,225.59	582,333.09	448,642.38	489,595.12	512,154.31	698,338.81	677,589.96	491,708.32	483,582.59	604,756.92	646,594.59	6,892,072.33
<b>S. Regional Total</b>	<b>\$ 1,406,084.21</b>	<b>\$ 1,422,904.08</b>	<b>\$ 1,358,372.81</b>	<b>\$ 1,000,025.78</b>	<b>\$ 1,046,373.54</b>	<b>\$ 1,069,929.81</b>	<b>\$ 1,434,314.71</b>	<b>\$ 1,365,411.18</b>	<b>\$ 1,022,234.98</b>	<b>\$ 1,059,988.69</b>	<b>\$ 1,362,505.40</b>	<b>\$ 1,434,233.88</b>	<b>\$ 14,982,379.07</b>

Southern Montana Electric Generation and Transmission Cooperative  
Annual Purchases by Member: Southern Systems

For 2003

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Beartooth kWh	12,804	14,174	13,161	9,166	9,495	9,580	11,554	10,573	9,149	10,448	12,628	13,014	135,746
Fergus kWh	6,017,175	5,827,384	5,807,046	4,234,576	4,419,453	4,412,398	5,550,414	5,122,752	4,120,604	4,148,897	5,948,269	6,388,054	61,997,022
Mid-Yellowstone kWh	16,902	19,039	18,376	13,290	12,083	11,733	13,442	12,228	11,686	14,428	16,747	16,594	176,548
Tongue River kWh	8,421,625	7,917,227	8,274,003	6,143,695	6,099,875	5,664,630	6,945,169	6,368,659	5,578,377	5,960,537	8,338,721	8,634,728	84,347,246
Yellowstone kWh	4,922	5,004	5,247	3,463	3,138	5,242	7,133	7,078	3,243	3,597	4,918	4,650	57,635
S. Reg Total kWh	2,492,978	2,278,839	2,301,744	1,523,697	1,495,847	1,825,735	3,657,538	3,315,973	1,457,776	1,493,619	2,237,731	2,468,409	26,549,886
S. Reg Total kWh	17,325	19,007	17,120	11,976	12,579	13,061	16,490	16,953	12,744	13,477	16,130	16,533	183,395
Yellowstone kWh	9,019,734	8,234,947	8,355,187	5,833,183	6,275,151	5,770,683	8,605,360	8,391,527	6,047,652	6,213,426	8,378,681	8,985,492	90,111,023
S. Reg Total kWh	42,492	48,956	40,163	32,116	36,654	40,503	48,661	47,575	38,006	35,994	41,990	43,261	496,371
S. Reg Total kWh	20,472,607	19,010,463	19,038,351	14,258,669	15,007,130	14,954,227	22,657,694	21,881,711	14,674,704	14,911,764	19,697,266	21,623,840	218,208,426
S. Reg Total kWh	94,445	106,180	94,067	70,011	73,949	80,119	97,280	94,407	74,828	77,944	92,413	94,052	1,049,695
S. Reg Total kWh	46,424,119	43,268,860	43,796,331	31,993,820	33,297,456	32,627,673	47,416,175	45,080,622	31,879,113	32,728,243	44,600,668	48,100,523	481,213,603

System Information: Total System

Total Losses	2.50%	1.44%	1.49%	1.22%	1.08%	4.27%	1.27%	2.88%	4.14%	1.16%	1.56%	2.56%	2.03%
Load Factor	66.07%	60.64%	62.58%	63.47%	60.52%	56.56%	65.51%	64.18%	59.17%	56.44%	64.87%	68.74%	61.82%

System L.F. based on annual peak

Southern Montana Electric Generation and Transmission Cooperative

Extrapolated/Actual Wholesale Power Expenses

For 2004 Actual After 1 June

Extrapolated

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
WAPA	\$ 333,771.96	\$ 330,132.95	\$ 328,664.95	\$ 237,552.81	\$ 237,552.34	\$ 172,052.14	\$ 185,550.85	\$ 194,745.00					\$ 2,020,023.00
Transm.	22,694.60	22,487.12	21,435.50	19,798.57	21,196.33	18,585.41	26,643.91	53,252.20					206,093.63
Basin	89,875.02	71,686.55	73,252.90	72,471.74	129,114.93								436,401.13
Basin Bill Credit - The above amount already reflects credit													
BPA	758,615.00	582,700.05	455,165.00	306,116.01	313,400.61	441,756.00	700,937.00	1,030,089.00					4,588,778.67
TBL	126,664.92	101,536.09	82,163.09	67,153.15	67,646.02	81,266.00	\$92,446.00	\$89,102.00					707,977.27
NWE/Trx	186,414.14	163,721.12	155,487.59	154,605.17	157,328.80	199,870.28	165,000.00	165,000.00					1,347,427.11
NWE/Imb	(10,612.66)	(25,371.32)	(14,591.48)	(4,114.76)	(502.97)								(55,193.19)
WAPA													
UMO/Pop	336.33	330.20	316.58	317.52	322.84								1,623.46
Total	\$ 1,507,759.31	\$ 1,247,222.77	\$ 1,101,894.12	\$ 853,900.21	\$ 926,058.89	\$ 913,529.83	\$ 1,170,577.76	\$ 1,532,188.20	\$ -	\$ -	\$ -	\$ -	\$ 9,253,131.09

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
WAPA:													
kW	43,489	38,720	31,084	26,657	28,960	25,767	30,780	29,007					254,464
kWh	21,090,204	17,764,934	15,265,170	12,684,559	12,488,360	11,148,154	14,282,521	13,383,967					118,107,869
Basin or other Supplemental Supplier													
kW	1,383	0	0	0	731								2,114
kWh	198,228	0	0	0	2,052,569								2,250,797
Sub Total													
kW	44,872	38,720	31,084	26,657	29,690	25,767	30,780	29,007	0	0	0	0	0
kWh	21,288,432	17,764,934	15,265,170	12,684,559	14,540,929	11,148,154	14,282,521	13,383,967	0	0	0	0	0
NWE (Imbalances appear as Energy purchase from NWE after 22 June 2000)													
kW	-519,761	-688,998	-428,204	-116,994	69,043								-1,684,914
BPA:													
kW	65,585	52,368	43,895	35,266	36,788	48,568	57,285	75,710					75,710
kWh	30,756,118	25,819,692	22,281,651	18,764,694	20,519,015	24,404,300	28,278,966	31,079,906					201,904,341
System Total													
kW	110,457	91,087	74,979	61,923	66,478	74,335	88,065	104,717	0	0	0	0	672,042
kWh	51,524,788	42,895,628	37,118,617	31,332,259	35,128,987	35,552,454	42,561,487	44,463,873	0	0	0	0	320,578,093

Blended Rate: For All Purchases (Through June with CM)													
mils/kWh	25.88	26.04	26.24	23.54	23.07	25.70	27.50	34.46	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	28.86
BPA Rate: Energy + Transmission (Through June with CM)													
mils/kWh	32.16	29.81	29.44	24.81	24.30	21.43	28.06	36.01	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	32.63
NWE Trans													
Total TRX	5.65	5.93	7.35	7.72	7.11	8.19	5.83	5.31	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	6.67
Total TRX	9.49	9.61	9.96	10.87	10.16	8.43	6.67	6.91	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	7.05



Southern Montana Electric G&T  
Annual Purchases by Member: Southern Systems

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Beartooth	15,332	11,978	10,534	8,862	9,964	9,327	10,979	9,507	10,979	9,507	10,979	9,507	86,483
kWh	6,866,293	5,649,826	5,085,256	4,274,670	4,616,235	4,332,653	4,901,072	4,642,187	4,901,072	4,642,187	4,901,072	4,642,187	40,368,192
Fergus	20,689	17,375	15,041	12,297	12,992	11,647	12,965	12,000	12,965	12,000	12,965	12,000	115,006
kWh	9,698,725	8,206,873	7,533,279	6,167,093	6,697,711	5,925,740	6,352,953	6,060,461	6,352,953	6,060,461	6,352,953	6,060,461	56,642,835
Mid-Yellowstone	5,946	5,335	3,993	3,426	5,241	5,529	7,272	6,854	7,272	6,854	7,272	6,854	43,596
kWh	2,832,104	2,375,293	1,874,803	1,533,591	2,368,785	2,491,355	3,103,056	3,474,080	3,103,056	3,474,080	3,103,056	3,474,080	20,053,067
Tongue River	20,814	18,821	14,191	12,850	14,064	13,276	15,584	14,266	13,276	14,266	15,584	14,266	123,866
kWh	10,026,283	8,510,138	7,178,584	6,314,650	7,112,265	6,537,170	7,754,983	6,980,124	6,537,170	7,754,983	7,754,983	6,980,124	60,414,197
Yellowstone	51,544	43,899	33,713	30,341	32,268	37,986	47,238	43,267	37,986	43,267	47,238	43,267	320,256
kWh	23,547,231	19,445,029	16,991,750	14,649,213	15,845,149	15,549,153	20,025,065	18,525,631	15,549,153	20,025,065	20,025,065	18,525,631	144,578,221
S. Reg Total kW	114,325	97,408	77,472	67,776	74,529	77,765	94,038	85,894	94,038	85,894	94,038	85,894	689,207
S. Reg Total kWh	52,970,636	44,187,159	38,663,672	32,939,217	36,640,145	34,836,071	42,137,129	39,682,483	34,836,071	42,137,129	42,137,129	39,682,483	322,056,512

Southern Montana Electric G&T  
Annual Purchases by Member: Southern Systems

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days	31	29	31	30	31	30	31	31	30	31	30	31	365
Hours	744	696	744	720	744	720	744	744	720	744	720	744	8,784
Beartooth	15,332	11,978	10,534	8,862	9,964	9,327	10,979	9,507	10,979	9,507	10,979	9,507	86,483
kWh	6,866,293	5,649,826	5,085,256	4,274,670	4,616,235	4,332,653	4,901,072	4,642,187	4,901,072	4,642,187	4,901,072	4,642,187	40,368,192
Load Factor	60.19%	67.77%	64.89%	66.99%	62.27%	64.52%	60.00%	65.63%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Fergus	20,689	17,375	15,041	12,297	12,992	11,647	12,965	12,000	12,965	12,000	12,965	12,000	115,006
kWh	9,698,725	8,206,873	7,533,279	6,167,093	6,697,711	5,925,740	6,352,953	6,060,461	6,352,953	6,060,461	6,352,953	6,060,461	56,642,835
Load Factor	63.01%	67.86%	67.32%	69.65%	69.29%	70.66%	65.86%	67.88%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Mid-Yellowstone	5,946	5,335	3,993	3,426	5,241	5,529	7,272	6,854	7,272	6,854	7,272	6,854	43,596
kWh	2,832,104	2,375,293	1,874,803	1,533,591	2,368,785	2,491,355	3,103,056	3,474,080	3,103,056	3,474,080	3,103,056	3,474,080	20,053,067
Load Factor	64.02%	63.97%	63.11%	62.17%	60.75%	62.58%	57.35%	68.13%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Tongue River	20,814	18,821	14,191	12,850	14,064	13,276	15,584	14,266	13,276	14,266	15,584	14,266	123,866
kWh	10,026,283	8,510,138	7,178,584	6,314,650	7,112,265	6,537,170	7,754,983	6,980,124	6,537,170	7,754,983	7,754,983	6,980,124	60,414,197
Load Factor	64.75%	64.97%	67.99%	68.25%	67.97%	68.39%	66.89%	65.76%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Yellowstone	51,544	43,899	33,713	30,341	32,268	37,986	47,238	43,267	37,986	43,267	47,238	43,267	320,256
kWh	23,547,231	19,445,029	16,991,750	14,649,213	15,845,149	15,549,153	20,025,065	18,525,631	15,549,153	20,025,065	20,025,065	18,525,631	144,578,221
Load Factor	61.40%	63.64%	67.74%	67.06%	66.00%	56.85%	56.98%	57.55%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
S. Reg Total kW	114,325	97,408	77,472	67,776	74,529	77,765	94,038	85,894	94,038	85,894	94,038	85,894	689,207
S. Reg Total kWh	52,970,636	44,187,159	38,663,672	32,939,217	36,640,145	34,836,071	42,137,129	39,682,483	34,836,071	42,137,129	42,137,129	39,682,483	322,056,512
System Load Factor	62.28%	65.18%	67.08%	67.50%	66.08%	62.22%	60.23%	62.10%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

10-Aug-04