1.0 INTRODUCTION

This chapter explains what this document is, who prepared it, and why. This chapter also explains the need for electrical power that Southern Montana Electric seeks to satisfy by building a coal-fired power plant and installing four wind turbines. Chapter 2 describes that proposed action along with alternative courses of action considered for meeting the identified purpose and need. Chapter 3 then describes the affected environment of the proposed action and two alternatives. Chapter 4 assesses the potential environmental impacts of the proposed action and alternatives while Chapter 5 considers possible cumulative impacts. This Environmental Impact Statement also includes several appendices.

1.1 THE PROPOSED ACTION

The Southern Montana Electric Generation and Transmission Cooperative, Inc. (SME) proposes to build a 250-megawatt (MW) coal-fired power plant and 6 MW of wind generation at a site near Great Falls, MT. This Environmental Impact Statement (EIS) discusses this Proposed Action and analyzes the potential effects that SME's action could have on the environment.

SME is based in Billings, Montana. As an Electric Generation and Transmission Cooperative, it is a non-profit utility owned by its members. As such, it provides wholesale electricity and related services to five electric distribution cooperatives and one municipal utility. The SME member systems are:

- Beartooth Electric Cooperative, Inc., headquartered in Red Lodge, Montana.
- Fergus Electric Cooperative, Inc., headquartered in Lewiston, Montana.
- Mid-Yellowstone Electric Cooperative, Inc., headquartered in Hysham, Montana.
- Tongue River Electric Cooperative, Inc., headquartered in Ashland, Montana.
- Yellowstone Valley Electric Cooperative, Inc., with headquarters at Huntley, Montana.
- Electric City Power, Great Falls, Montana.

SME's 58,000-square mile (150,220-square kilometer) service area encompasses 22 counties in two states – Montana (Figure 1-1) and a very small area of Wyoming. SME's total electric load requirement consists of the combined system needs of the five electric distribution cooperative members and one municipal utility. Under its charter, SME is required to meet the electric power needs of the member systems it serves. As the next section discusses, SME does not have the capacity to meet all of its members' power needs beyond roughly 2010. After considering various ways to meet those future needs (see Section 1.2), SME identified the construction of a new coal-fired power plant supplemented with four wind turbines as its best course of action to meet the electric energy and related service needs of approximately 120,000 Montanans upon completion.

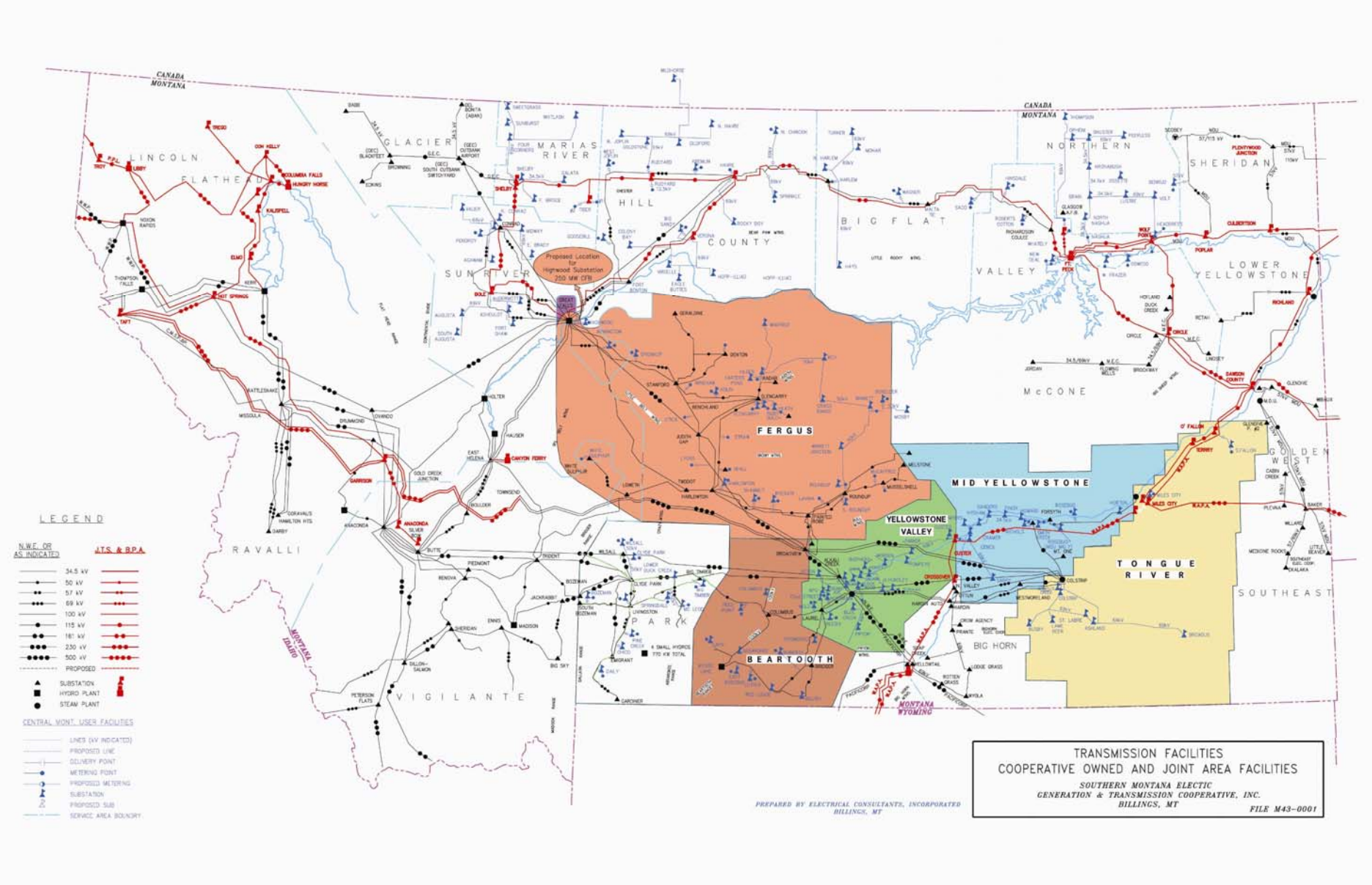


Figure 1-1. Southern Montana Electric (SME) Generation and Transmission Cooperative Service Area in Montana

1.2 KEY AGENCY ROLES, RESPONSIBILITIES AND DECISIONS

1.2.1 USDA RURAL DEVELOPMENT, UTILITIES PROGRAMS

SME has applied for a loan guarantee for generation and transmission (G & T) borrowers' lending to construct this facility from the Rural Utilities Service (RUS). The Federal Financing Bank (FFB) provides the actual loan dollars and RUS guarantees the repayment of the money to FFB. RUS is an agency which administers the U.S. Department of Agriculture's Rural Development Utilities Programs (USDA Rural Development (RD)).

Under the authority of the Rural Electrification Act of 1936, RD Electric Programs makes direct loans and loan guarantees to electric utilities to serve customers in rural areas. Among other things, these loans and loan guarantees finance the construction of electric distribution, transmission, and generation facilities, as well as demand side management, energy conservation programs, and on-grid and off-grid renewable energy systems. Loans are made to corporations, states, territories and subdivisions and agencies such as municipalities, citizen utility districts, and cooperatives, nonprofit, limited-dividend, or mutual associations that provide retail electric service needs to rural areas or supply the power needs of distribution borrowers in rural areas.

RD has established procedures for determining if proposed projects for which loans are sought are feasible both from an engineering and financial perspective. As part of the loan application process and prior to preparing this EIS, SME was required to prepare three studies: an Alternative Evaluation Study, a Siting Study, and a Macro-Corridor Study (7 CFR 1794.51(c)). These studies were available to the public prior to the scoping meetings held in Great Falls.

Subject to the completion of all environmental review requirements and loan requirements, RD's decision on this proposal is whether to finance the proposal.

1.2.2 U.S. ARMY CORPS OF ENGINEERS

SME's proposal to install an intake structure and pipe in Morony Pool in the Missouri River will require a permit under Section 10 of the Rivers and Harbors Act. The Corps is the permitting authority for the installation of any structure or work on, over, under or affecting navigable waters. SME has submitted a Section 10 permit application to the Corps for its Proposed Action.

1.2.3 MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)

The Montana legislature has passed statutes and regulations defining the requirements for construction and operation of a transmission line, discharge of process and storm waters, discharge of emissions, storage of hazardous and solid wastes, and development and operation of pubic water supply and sewer systems. The DEQ is required to evaluate the permit, certificate, and license applications submitted by SME under the following major laws and regulations:

- The **Montana Environmental Policy Act (MEPA)** (75-1-101 *et seq.,* MCA and ARM 17.4.601 *et seq.*) requires the state to conduct an environmental review when making decisions or planning activities that may have an impact on the environment. The MEPA and regulations define the process to be followed when preparing an environmental assessment (EA) and an EIS.

- The **Montana Clean Air Act** (75-2-101 *et seq.,* MCA) requires a permit for the construction, installation, and operation of equipment or facilities that may cause or contribute to air pollution.

- The **Montana Water Quality Act** (75-5-101 *et seq.,* MCA) regulates the discharge of pollutants into state waters through the adoption of water quality standards and the permit application process. Water quality standards specify what changes in water quality are allowed during the use of state waters and establish a basis for wastewater and storm water discharge permitting. This act also includes the provisions for short-term waivers for turbidity during construction and Section 401 Certification.

- The **Montana Solid Waste Management Act** (75-10-201 *et seq.,* MCA) regulates the disposal of solid wastes. A license is required to construct a landfill. On-site disposal of fly ash from power plants is excluded from this requirement; however, SME has voluntarily agreed to subject itself to applicable landfill standards for the proposed on-site fly ash monofill.

1.2.4 MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION (DNRC)

The Montana Department of Natural Resources and Conservation (DNRC) administers several statutes and regulations that pertain to SME's proposed HGS and related facilities, such as the electrical transmission and raw water lines:

- The Montana Water Use Act (85-2-101 *et seq.,* MCA) regulates the issuance of new appropriations of water and changes to existing water rights.

- The Montana Floodplain and Floodway Management Act (76-5-401 through 406, MCA) requires a permit for anyone planning new construction within a designated l00-year floodplain.

- The Conservation Districts Bureau of DNRC administers the Montana Natural Streambed and Land Preservation Act (75-7-101 *et seq.,* MCA). Any non-governmental entity that proposes to work in or near a stream on public or private land in which any activity may physically alter or modify the bed or banks of a perennially flowing stream requires a 310 permit.

- A Montana land-use license or easement on navigable waters is required for any project on lands below the low water mark of navigable waters.

The DNRC will decide on authorizing a change in point of diversion and place of use for the existing water reservation of the City of Great Falls. DNRC may deny an application to change a water right if the applicant does not meet the criteria under 85-2-402, MCA. Other DNRC decisions include issuance of a Floodplain Development Permit and 310 Permit

1.2.5 MONTANA STATE HISTORIC PRESERVATION OFFICE

The State Historic Preservation Office (SHPO) cooperates with and advises federal and state agencies when a proposed project could affect potentially significant historical, archaeological, or other cultural resources. The SHPO provides federal agencies with site value recommendations for cultural resources eligible for the National Register for Historic Places. If approved, the lead agencies would oversee compliance with historic preservation and monitoring plans.

1.2.6 MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

The Montana Department of Fish, Wildlife and Parks (FWP) is responsible for the use, enjoyment, and scientific study of the fish in the Missouri River and other project area watercourses. FWP also administers the Stream Protection Act, and cooperates with the DEQ in water quality protection.

1.3 NEPA AND MEPA PROCESSES

USDA must comply with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code (USC) 4321 et seq.) and its implementing regulations from the Council on Environmental Quality (40 Code of Federal Regulations (CFR) 1500-1508), and from USDA's Rural Utilities Service's Environmental Policies and Procedures (7CFR 1794).

In cases such as this, NEPA requires that the responsible agency:

- identify the purpose and need to be met;
- identify the available courses of action to meet that need, including no action;
- identify, evaluate and compare the impacts on the environment that could arise from each of the reasonable alternatives;
- publish this information in an Environmental Impact Statement (EIS) for review by the public and other agencies;
- consider the impacts, ways to lessen or avoid them, and public and agency comments, before making its decision on the proposal.

Under Montana's MEPA (Title 75, Chapter 1, MCA), a state law very similar to NEPA, the Montana Department of Environmental Quality (DEQ) must conduct an environmental impact

analysis before deciding about issuing the discharge and emissions permits SME's power plant would need. In addition to the above NEPA requirements, MEPA requires DEQ to:

- list and describe the responsibilities of federal, state, and local agencies that have jurisdiction over some aspect of the Proposed Action;
- describe potential growth-inducing or growth-inhibiting impacts;
- describe the economic and environmental benefits and costs of the Proposed Action;
- describe the relationship between local short-term uses of man's environment and the effect on maintenance and enhancement of the long-term productivity of the environment;
- evaluate the effects of regulatory restrictions on private property.

Because of the similarity of NEPA and MEPA and their joint need to prepare EIS's, USDA and DEQ have decided to jointly prepare and issue this EIS to meet the needs of both agencies and the requirements of both NEPA and MEPA. USDA and DEQ selected an independent contractor with no ties to Southern Montana Electric, and directed the contractor's preparation of this EIS, in accordance with RD regulations.

ABOUT ENVIRONMENTAL IMPACT STATEMENTS

An EIS is intended to help agencies make environmentally well-informed decisions about major actions. It focuses on providing the specific information – on the proposed action, alternatives, and impacts – that is relevant to the agency's decision making.

The EIS answers major questions such as:

- What is the need to be met?
- In what ways could the need be addressed?
- How would these courses of action affect the environment?
- What could be done about those effects?
- What do others think about these alternatives and their impacts?

Preparing an EIS involves several steps, including a "scoping" process at the outset. In scoping, the responsible agency asks other agencies, organizations and the public for input concerning the planned EIS. Later, when the EIS is published as a draft, the agency again invites outside comments, which are reflected in the final EIS, which is published prior to the agency's making a decision. The public may again comment on the final EIS under NEPA.

1.4 PURPOSE, NEED FOR, AND BENEFIT OF THE ACTION

At present, SME meets all of its requirements to provide power to its member systems by purchasing power from two Federal power suppliers. However, its major supplier will end its sales of power to SME by 2011. This forces SME to seek a way to close the large projected gap between the amount of power it can provide to its member systems and the amount of power those member systems need to supply their residential, commercial and industrial customers.

It should be noted that the RD application covers the financing needs of the five cooperative members of SME, representing approximately 75 percent or 185 MW of the total projected load needs of only SME (Table 1-1). Electric City Power (a Montana non-profit corporation formed by the City of Great Falls to provide electric service to its customers), representing

Table 1-1. SME's Cooperative Member Systems Requirements: Peak Demand in MW, 2004-2018[8]

Year	Estimated System Peak[1]	WAPA[2]	Wind or EPP[3]	Option 1 less WAPA[4]	System Peak 2003 L.F.[5]	Option 2 less WAPA[6]	BPA Residual	Max. Required[7]
2004	106	20	1	85	110	89		0
2005	132	20	1	111	136	115		0
2006	136	20	1	115	140	119		0
2007	145	20	1	124	149	128		0
2008	154	20	1	133	159	138	93	45
2009	165	20	1	144	170	149	33	116
2010	168	20	1	147	174	153	31	122
2011	172	20	1	151	177	156	29	127
2012	175	20	1	154	181	160	0	160
2013	179	20	1	158	185	164	0	164
2014	183	20	1	162	189	168	0	168
2015	187	20	1	166	193	172	0	172
2016	191	20	1	170	197	176	0	176
2017	195	20	1	174	201	180	0	180
2018	199	20	1	178	205	184	0	184

Source: SME, 2004d

[1] Estimated System Peak calculated by using the estimated usage in kWh and the Average System Load Factor for the period 2001 through 2004

[2] Unadjusted

[3] Environmentally Preferred Product

[4] Peak demand projection based on average system load factor for period 2001-2004 less Western Area Power Administration (WAPA) and EPP. Option 1 represents the estimated peak demand for the cooperative member systems calculated by using the average system load factor for the period 2001 through 2004 less the residual power purchase rights from the WAPA.

[5] Annual system load factor for 2003. This column shows the estimated peak system requirements prior to subtracting the residual power purchase rights from the WAPA. As was stated in the Load Forecast, SME's ability to make purchases from the WAPA has been (and will continue to be) reduced from time to time unilaterally by WAPA. Based on this demonstrated pattern – in fact SME's purchase rights were reduced slightly beginning January 2006 – SME needs to keep in mind it could lose entirely its right to make purchases from WAPA. This column represents an estimate of SME's peak demand requirements if WAPA was to completely remove SME's purchase rights. SME also needs to recognize that there have been efforts in the past to sell the Power Management Authorities and that it could happen again.

[6] Peak demand projection based on annual system load factor for 2003 less WAPA and EPP. Option 2 represents the estimated peak demand calculated by using only the system load factor for the year 2003 less the residual purchase right from WAPA.

[7] Maximum requirement represents total demand requirement less residual BPA purchase rights

[8] Options 1 and 2 were developed to demonstrate an improvement in member system load factor and the impact that effort had on projected capacity requirements. Option 2 was ultimately selected as the preferred option because it was believed to more accurately represent the anticipated load factor over an acceptable planning horizon as manifested in peak demand for SME. Their member systems have focused on improving their load factors and it was determined that the load factor for 2003 would more accurately represent an anticipated load factor for planning purposes. Option 1 was left in to simply demonstrate that more than one option was considered in the context of the planning process.

approximately 25 percent or 65 MW of the load needs of SME, is financing its share of the facility through issuance of revenue bonds (RW Beck, 2004). While the RD loan will cover approximately 75 percent of the cost of the facility, this joint EIS evaluates the purpose and need and environmental impacts associated with the entire 250-MW facility, particularly since NEPA and MEPA require evaluation of the entire project.

Currently, approximately 20 percent or 20 MW of the cooperative member systems' wholesale supply requirements are met through a power purchase agreement with the Federal Western Area Power Administration (WAPA). The remaining 80 percent or about 100 MW is met by purchase from the Bonneville Power Administration (BPA) under an "all supplemental requirements" contract effective from 2000-2017. The wholesale power requirements of Electric City Power are met with purchases from PPL Montana that will expire in 2011.

A provision of SME's power purchase agreement with BPA allows "recall" of a portion of SME's purchase rights beginning in 2008, and the remaining power purchase rights of the contract by 2011. BPA has now exercised this provision because it has determined that the load requirements of the region which it has a statutory requirement to serve will have needs in excess of its current generating capacity. Under the laws governing BPA, SME is an "extra-regional" customer because it is located east of the continental divide.

SME has unsuccessfully sought to persuade BPA to reconsider its decision. SME will experience an approximate 50 MW reduction in its power purchase rights with BPA in 2008 (SME, 2004a). After 2011, when SME's power purchase rights with BPA will fully expire, SME will lose approximately 160 MW of power supply.

The demand for power from SME is projected to increase over the course of the next several years. SME's cooperative member systems project an increase in electric power demand to approximately 180 MW by 2017 (Table 1-1). Therefore, the160 MW that will no longer be available from BPA will clearly cause a major shortfall, as will the expiration of SME's contracts with PPL Montana on behalf of Electric City Power for approximately 65 MW. Moreover, SME's only other power supplier, WAPA, also has the contractual right to reduce its supply to SME, and has made reductions in the past.

ELECTRICAL UNITS

Watt: A watt is a measure of power, or the rate at which work is done. One watt equals one joule (a unit of energy) per second. Another measure of power is horsepower, with 1 horsepower theoretically equal to 746 watts.

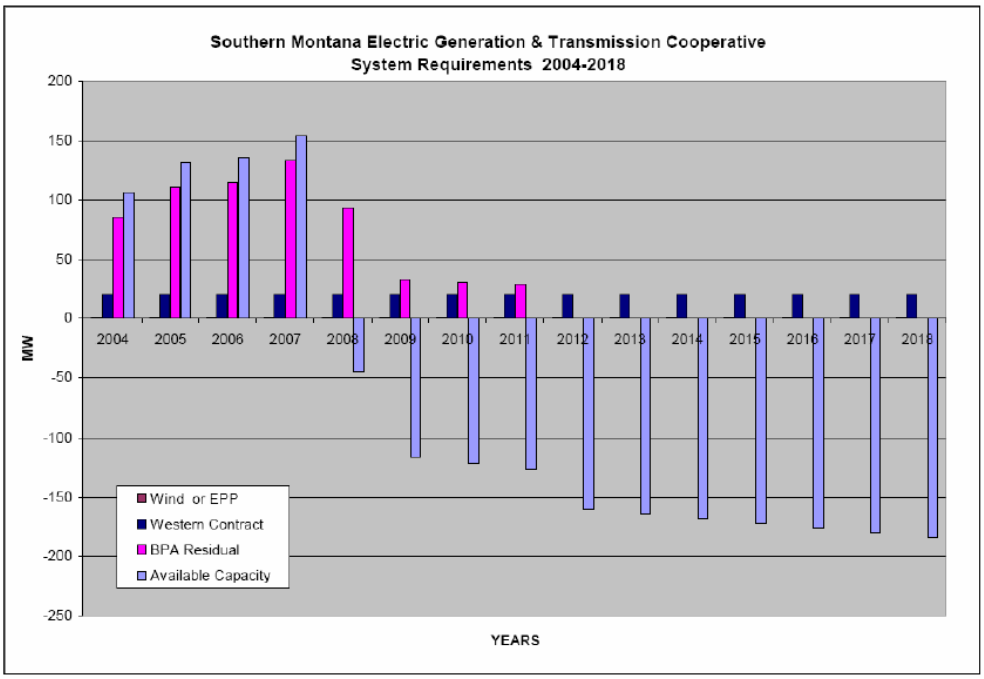
Kilowatt (KW): 1 thousand watts

Megawatt (MW): 1 million watts

Megawatt-hour (MWh): A megawatt-hour is a measure of the total amount of energy delivered, or used. One megawatt hour is a power of one megawatt used for one hour.

SME faces an imminent wholesale power supply shortfall of major proportions. Figure 1-2 depicts this deficit graphically. While this deficit will have to be made up in the next few years by purchasing power from other sources, SME seeks a lower cost solution for the long term that will ensure its ability to provide affordable, reliable, quality electric energy and related services to its six member systems.

Figure 1-2. Upcoming Capacity Deficit Faced by SME's Cooperative Member Systems



Source: SME, 2004a

1.4.1 ESTIMATED ELECTRIC LOADS OF COOPERATIVE MEMBER SYSTEMS

This section explains how much electric power SME projects it will need to provide to its member customers, and shows that the demand will be increasing at the same time that SME's power supply will be decreasing.

SME must provide power to its member cooperatives, which have no power supplies other than what they obtain from SME. In the next several decades, SME projects that its electric load will in fact increase. This will be primarily due to increases in residential customers (which includes both urban and farm customers), and in commercial and 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. SME used historic usage served as the primary tool for load forecasting (SME, 2004a).

1.4.1.1 Residential

The demand for electricity for residential customers is expected to increase for several reasons: increasing population and increasing use of electricity per household.

Historically, residential loads have accounted for approximately 67 percent of projected total sales made by SME to its member cooperatives. The number of residential customers served by the member systems of SME has been increasing at an annual rate of approximately 1.75 percent over the last 10 years, with most of this growth due to residential subdivisions being developed on the peripheral edges of Billings, Montana in Yellowstone Valley Electric Cooperative's

service territory. The annual growth rate in the number of residential customers ranges widely among SME's member cooperatives – from less than 0.5 percent in Mid-Yellowstone Electric Cooperative's service territory to approximately 4 percent in Yellowstone Valley Electric Cooperative's service territory (SME, 2004a).

SME projects a system increase in residential customers of approximately 2.5 percent annually over the next 20 years. The main factor behind this increase will be the continued expansion of the City of Billings into the area served by Yellowstone Valley Electric Cooperative. SME 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 areas known to offer recreational and "quality" lifestyle opportunities. As a general rule where there is a combination of "trees, scenery and water" there will be population growth in Montana and the Rocky Mountain West generally. If these qualities are absent there is little or no growth (SME, 2004a).

The average amount of electricity used per residential customer 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, due to more efficient heating appliances.
- Increased 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.

In addition to traditional load growth, SME 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. Recent and expected future increases in the price of natural gas have seriously undercut 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, while electric prices remain stable or increase at a more gradual pace, there may be 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, which offer the added advantage of air conditioning (SME, 2004a).

Taking into account the above projected changes in the total number of residential customers and the mean electricity consumption per customer, total electricity sales to SME's residential customers are projected to increase 3.3 percent per year over the next 10 years. Once the already planned developments in the Billings, Montana and Clark, Wyoming areas are built, SME anticipates the surge in growth will subside. Future load growth is expected to return to more traditional levels (SME, 2004d).

Due to increased industrial activity currently underway in Fergus Electric's service territory and planned methane gas development in Tongue River Electric's service territory, the residential

customer load is expected to decline from 67 percent to approximately 56 percent of SME's service obligation for the period 2003-2018. The bulk of that shift is expected in the period 2003-2008.

1.4.1.2 Commercial and Industrial

SME partitions its commercial and industrial customers into "small commercial" and "large commercial" 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 projected to increase by 1.5 percent per year over the next 20 years. For the period 2003-2018, SME anticipates a 1.7 percent annual increase in the wholesale energy requirements of the member systems' small commercial loads (restaurants, retail stores, "cottage industries," and small manufacturing facilities). 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.

If the efforts now being undertaken by local governmental agencies like 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 upward accordingly. For the purpose of this needs analysis, a more conservative approach has been 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 analysis there must be considerable assurance that the load is likely to develop (SME, 2004a).

Although SME does not expect a dramatic increase in the consumption rates of small commercial and industrial users of electricity on a per customer basis, it 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 coal bed 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. The impact of the installation of this large pumping load, in conjunction with ongoing methane gas development, represents a projected increase in sales to the large commercial segment of SME's load base of approximately 40 percent 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. This methane gas load development in Montana reflects the established trend in other nearby regions such as northern Wyoming. The near future is likely to bring further natural gas development in the Rocky Mountain States. Based on assessments conducted between 1987 and 1999 by the U.S. Department of Energy (DOE) and the U.S. Geological Survey (USGS), DOE concludes that the Rocky Mountain States

in general possess "enormous" volumes of natural gas, almost 7,000 trillion cubic feet (Tcf), although only a small fraction is technically recoverable (DOE, 2003a). One Tcf is enough natural gas to heat 15 million homes for one year. Five Rocky Mountain States (Colorado, New Mexico, Utah, Wyoming and Montana) now account for 27 percent of proved natural gas reserves; in 2001, Montana accounted for 1 Tcf of the 5-state total of 65 Tcf proved reserves (combined total dry gas/coal bed natural gas) (DOE, 2003a).

LOAD FACTOR

Figure 1-3 is a graph depicting projected growth in SME's member systems' electrical energy requirements by sector. It includes minor sectors such as irrigation, street lighting, and public authorities, which are projected to remain relatively stable or flat over the coming two decades. The units in Figure 1-3 are Megawatt-hours (MWh). A problem inherent to developing a load forecast is making the transition back and forth between MWh and MW. Electric generation capacity is expressed in terms of megawatts. The relationship between megawatt-hours and megawatts of capacity is a variable dependency known as "load factor." Thus, there is not a direct correlation between generation capacity and total energy consumption over a prescribed number of hours because loads are cyclical in nature.

SME 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 SME of approximately 25 percent over projected 2004 requirements. These projections are rather conservative 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, 30 times greater than Tongue River's projection.

These projected increases in the load requirements of large industrial consumers will contribute substantially to the increase in SME's wholesale power requirements during the period 2004-2013. Large industrial customer load ("large commercial" in Figure 1-3) is expected to increase on average approximately 15 percent annually from 2003 to 2016. For the period 2013-2018 projected load growth will have almost leveled off to a rate of less than one percent annually. Without the increased load associated with the above two predicted activities, SME would anticipate a more modest growth rate of approximately 3 percent over the 2003-2009 period.

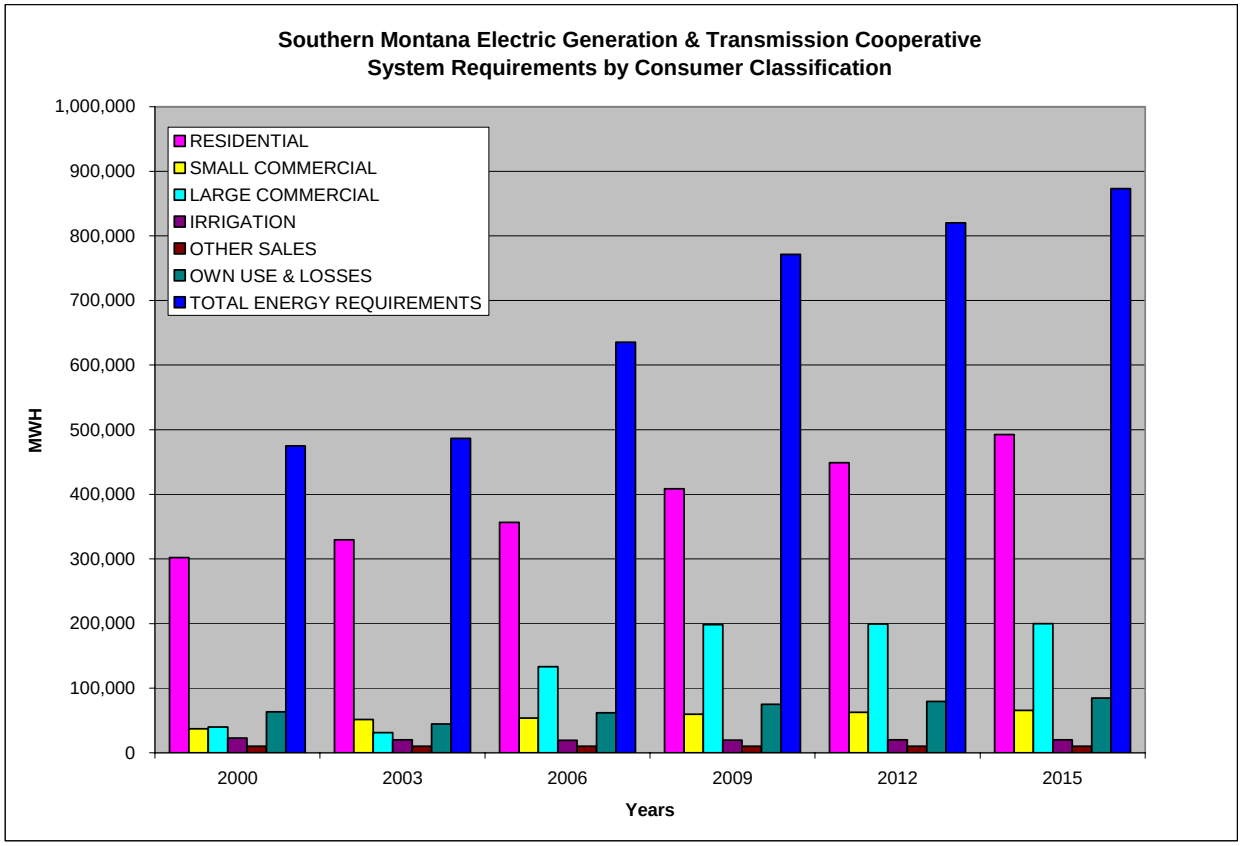
1.4.2 POWER SUPPLY

1.4.2.1 Generating-Capacity Mix

The most economical means of supplying the cyclical load on an electric power system is to have three basic types of generating capacity available:

a. Base load capacity
b. Intermediate load range capacity
c. Peaking capacity

Figure 1-3. SME Cooperative Member System Requirements by Customer Classification Through 2015



Base load capacity operates near its full rating continuously, day and night, all year long. It is economical to design these units with a maximum of fuel-economizing features, highest practical steam temperatures and pressures, extensive use of regenerative boiler-feed water heaters, reheat and double-reheat boiler-turbine arrangements, and large condensers with minimum-temperature cooling water. These items increase the cost of the plant but are justifiable because the fuel-cost saving is large due to the large amount of power produced by having the unit run continuously. The design of the plant is optimized to obtain the balance between high first cost and low fuel cost that will give the lowest overall power cost under the assumption that the unit will be heavily loaded for many years. The best design will vary depending on the unit size, money costs, and fuel type and cost. Base load units are generally the newest, largest, and most efficient of the three types of units (EIA, 2005b).

Peaking capacity is operated only during daily peak-load periods during the seasonal peak times of the year and during emergencies. Because the total annual output is low, high efficiency is not as necessary as for base load units. Low first cost is of prime importance. Combustion turbines and pumped-storage hydro units are the typical peaking units (SME, 2004a).

Intermediate load range capacity fits between the base load capacity and peaking capacity in both first cost and fuel cost. It generally is designed to be "cycled", that is, turned off regularly at

night or on weekends and loaded up and down rapidly during the time it is on the line to accommodate the load swings on the system. In other words, intermediate-load units are used during the transition between base load and peak load requirements. Some additional cost is required to allow for repeated starts and stops without equipment damage or the need for larger operating staffs. However, owing to the lower annual production, some reduction in efficiency is justified. Older small base load units and hydro units with restrictions on water use are sometimes used for intermediate and peaking service (SME, 2004a).

As earlier indicated in Section 1.4 above (Purpose, Need for, and Benefit of the Action), SME does not own base load generation and currently meets approximately 80 percent of its cooperative members' wholesale electric energy supply requirements with a power purchase agreement with BPA and the remaining 20 percent through a power purchase agreement with WAPA. By 2011, SME's power purchase rights with BPA will fully terminate, leaving SME with an approximate shortfall of 160 MW. At that time SME will still have residual power purchase rights with WAPA of approximately 20 MW. As noted, WAPA could reduce this power purchase right for a number of reasons. If the WAPA power purchase agreement were to be completely withdrawn, SME would have a projected requirement of approximately 160 MW in 2008, escalating to approximately 180 MW by 2012. Further, Electric City Power of the City of Great Falls, an SME member, will have projected requirements of about 65 MW after 2011.

On the basis of the results of repeated efforts to secure affordable power purchase agreements, SME does not believe that continuing to rely solely on traditional power supply agreements is acting in the best interest of the member systems it serves. Power purchases face market volatility, transmission capacity issues, and the unwillingness of current owners of existing generation to sell the electrical output of their facilities at prices less than "what the market will bear." These represent a compelling reason for SME to seek a supply option that provides a higher level of control over its existing and future supply needs.

1.4.2.2 Natural Gas Supply, Demand and Pricing

SME conducted an extensive search in the power supply market place for a suitable source of electrical energy to meet its member system requirements with a power purchase agreement secured from an existing source of generation within the Western System Coordination Council (WSCC). The lack of affordable generation capacity in the WSCC, combined with ever-increasing transmission constraints, has cast doubt on the future viability of purchasing capacity from existing sources of wholesale supply. The WSCC, of which SME is a member, has relied completely on very expensive natural gas-fired generation to meet future regional supply requirements. The forward price of a power purchase agreement would closely track the forward price of natural gas, which has been rising sharply in recent years (API, 2005a). With the price volatility of natural gas, plus the fact that the increasing cost of natural gas-fired generation constitutes the future marginal cost for wholesale electric energy and related supply services, the price SME would pay for power supply might be nearly double its current costs. Given this much greater cost, plus difficult or intractable related transmissions issues, negotiating an acceptable power purchase agreement does not appear to be a viable option.

As in much of the country, consumption of natural gas in the Northwestern U.S. has increased markedly since the 1970's. Not only has gas continued its traditional role as the fuel of choice for residential and commercial heating, but it also became the premier fuel for new electricity generation. Virtually all new generation built in the region was combined or simple cycle gas turbines, which were easy to locate, economical, and "environmentally friendly."

Rather than develop a more comprehensive, balanced and diversified supply portfolio, the region decided that the benefits of gas fired generation outweighed the risk associated with the inherent volatility in the price of natural gas. As the region has begun to experience in recent winters, 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 is most likely to have the greatest adverse affect on those that can afford it least – fixed and low-income families.

In general terms, rising natural gas prices are due to a number of factors, including:

- Strong growth in demand.
- Competing government policies that encourage use of natural gas on one hand but discourage new supplies by restricting access and development of domestic natural gas resources on the other.
- Lack of infrastructure needed to transport more natural gas to market.
- Declining productivity of older fields (API, 2005a; 2005b). Natural gas well productivity peaked at 435 thousand cubic feet (Mcf) per day in 1971 and by 2004 had declined to 126 Mcf per day (EIA, 2005c).

By 2025, nationwide demand for natural gas is expected to increase by about 40 percent (API, 2005a). Prices are expected to continue to climb and stay volatile. The U.S. Department of Energy (DOE) has predicted that the average residential price of natural gas will climb from $9.51 per thousand cubic feet (mcf) in 2003 to $14.48/mcf by 2006 (EIA, 2005c).

Western System Coordination Council (WSCC)

The U.S. bulk power system has evolved into three major networks or power grids. The WSCC is one of these networks. The major networks consist of extra-high-voltage connections between individual utilities designed to permit the transfer of electrical energy from one part of the network to another. These transfers may be restricted by a lack of contractual arrangements or by inadequate transmission capability. The three networks are:

- the Eastern Interconnected System,
- the Western Interconnected System (WSCC), and
- the Texas Interconnected System.

Virtually all U.S. utilities in the contiguous 48 states are interconnected with at least one other utility by these three major grids. The inter-connected utilities within each power grid coordinate operations and buy and sell power among themselves. The bulk power system makes it possible for utilities to engage in wholesale (for resale) electric power trade. Wholesale trade has historically played an important role, allowing utilities to reduce power costs, increase power supply options, and improve reliability.

– Energy Information Administration, U.S. Department of Energy (EIA, 2005a)

1.4.3 LOAD AND GENERATING CAPABILITY

1.4.3.1 Growth in Generation to Serve Load Base

At present, SME owns no base load generation and meets its wholesale power requirements through the use of power purchase agreements with BPA and WAPA. As stated above, the BPA contract begins to expire in 2008 and by 2012 the cooperative member systems will face a supply deficit of approximately 160 MW, which includes the WAPA component. Table 1-2 is a summary of SME's cooperative member systems' projected capacity requirements for the period 2004-2018. Given the unfavorable conditions of the power purchase option this table may also represent SME's need for a generation resource suitable to meet this requirement. The following information is based on the assumption that SME will continue to have the opportunity to purchase approximately 20 MW from WAPA. If the power purchase rights in WAPA's power purchase agreement were reduced, the following projections would need to be increased accordingly. If the WAPA power purchase agreement were to be completely withdrawn, SME's cooperative member systems would have a projected requirement of approximately 160 MW in 2008, escalating to approximately 180 MW by 2012.

1.4.3.2 Combined Base Load Generation and Power Purchase Option

Over the course of the past 60 years the member systems of SME have met their total wholesale power supply requirements through the use of traditional power purchase agreements. Prior to June 22, 2000, the member system supply needs were met through a combination of purchases from the former Montana Power Company (MPC) and WAPA. The member systems had a defined allocation from WAPA that satisfied approximately 20 percent of the supply requirement, with MPC meeting the remaining need under the terms and conditions of an "all supplemental power requirements contract" that expired on June 22, 2000. Since the expiration of the MPC contract, the portion of the member system requirements previously supplied by MPC has been met with purchases from BPA. As explained earlier, the BPA purchase opportunity will begin to expire in 2008 and disappear completely in 2011 (SME, 2004a).

In the wake of the Energy Policy Act passed by Congress in 1992 and the Electric Utility Industry Restructuring and Customer Choice Act passed by the Montana Legislature in 1997, MPC embarked on a process to divest itself of its generation assets. MPC's generation assets were purchased by Pennsylvania Power and Light (PPL) in 1999, removing from the regulatory process wholesale power transactions involving energy produced by these assets. With the exception of wholesale power purchases made from non-Federal Energy Regulatory Commission (FERC) regulated federal power marketing agencies such as BPA and WAPA, all wholesale power transactions in Montana today are consummated at market rates. Montana ratepayers, at both the retail and wholesale level, no longer have access to electric energy at a regulated rate for service. Except for limited purchases from BPA and WAPA, electric energy prices in Montana are "market based."

Prior to broadening its list of options to include the concept of securing an equity position in a yet to be constructed generating facility, SME made several attempts to engage in meaningful

Table 1-2. SME Cooperative Member System Energy Requirements by Consumer Classification (MWH)

Southern Montana G&T	YEAR	RESIDEN-TIAL	SMALL COM-MERCIAL	LARGE COM-MERCIAL	IRRIGA-TION	OTHER SALES	TOTAL SALES	OWN USE & LOSSES	TOTAL ENERGY REQUIRE-MENTS
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
	2004	338,229	52,105	31,600	19,294	10,042	451,268	47,749	499,018
P	2005	347,265	53,030	127,123	19,366	10,043	556,827	60,188	617,015
R	2006	356,669	53,882	133,180	19,426	10,043	573,201	61,988	635,190
O	2007	371,884	55,658	154,017	19,486	10,043	611,088	66,046	677,133
J	2008	387,576	57,475	174,864	19,548	10,043	649,508	70,149	719,657
E	2009	408,731	59,514	198,354	19,611	10,043	696,252	75,156	771,409
C	2010	421,723	60,506	198,605	19,674	10,043	710,551	76,613	787,164
T	2011	435,101	58,518	198,859	19,738	10,043	722,259	78,113	800,372
E	2012	448,876	62,550	199,117	19,804	10,043	740,389	79,653	820,042
D	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
	YEAR	RESID.	SM COMM.	L. COMM.	IRRIG.	OTHER	T. SALES	USE & LOSS	T. REQ.
Growth Rate	1971-2003	3.72%	3.59%	3.68%	4.83%	-1.23%	3.33%	3.18%	3.31%
Historic	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%
Growth Rate	2003-2008	3.30%	2.30%	41.27%	-0.40%	0.00%	8.01%	9.41%	8.14%
Projected	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%

discussions with owners of existing generation facilities to secure an affordable replacement for the expiring BPA contract. The most recent effort to secure a power purchase agreement was through a Request for Proposal (RFP) issued in November 2003. Clearly, the ideal situation would have been for SME to continue meeting approximately 80 percent of its needs with purchases from BPA, but that is no longer an option.

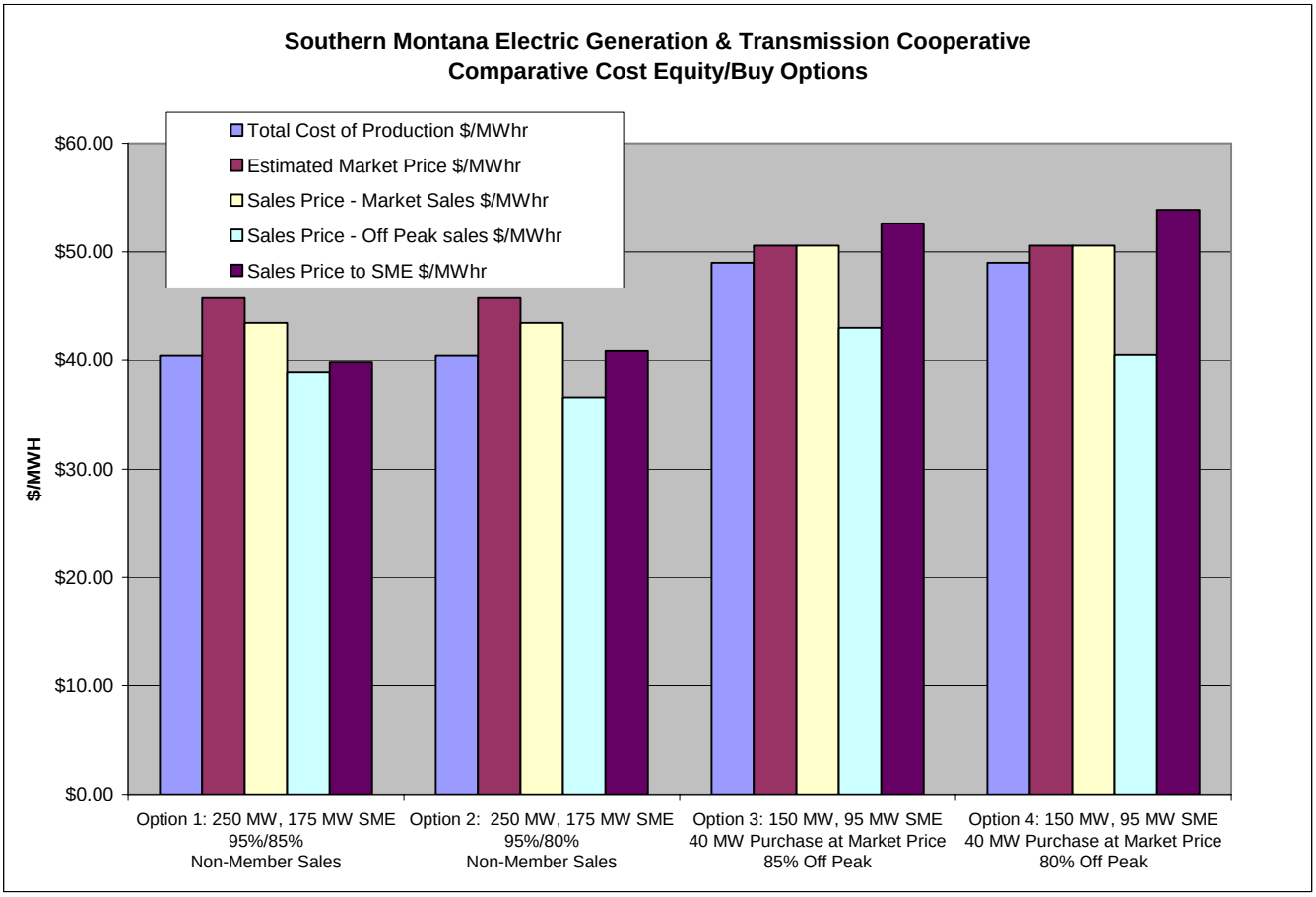
SME and its member systems have evaluated whether to embark on a plan to build their own generation resources. Included in those deliberations is the concept of continuing to meet a portion of its energy requirements with traditional power purchase agreements. As shown in Table 1-1 above, in 2009 SME's member cooperatives would meet approximately 20 percent of its wholesale power needs with continued use of its allocation from WAPA and purchases from regional suppliers of an Environmentally Preferred Product (EPP) that will include wind. Based on a review of existing alternatives, it would appear that SME's best option for the near term would be to meet its wholesale power requirements with a combination of purchases from WAPA, EPP, and its portion of the production from a new source of generation. Alternatives for post-2016 requirements would remain open, allowing for the timely evaluation of newly emerging resources that would complement SME's contemplated diverse supply portfolio.

The following calculations reflect the estimated cost of a new resource that would utilize "clean coal" technology and how the cost of that resource would be priced to the members of SME. The member system rates would fully cover the cost of developing that resource through member purchases, making allowances for "off peak" sales, and reflecting revenue from the interim sale of capacity secured for future SME loads. Options 1 and 2 reflect scenarios wherein SME would meet its needs above WAPA and EPP with its own base load resource. Options 3 and 4 represent the increase in cost if SME were to purchase an additional 40 MW on the market at $45 per MWh.

Figure 1-4 presents an analysis of the level at which the member purchases of wholesale power and related services would need to be priced in order to cover the embedded cost of developing a new generation facility. Option 1 describes a scenario in which SME would secure an equity position in a new 250-MW facility commensurate with 175 MW of the unit's total 250 MW. SME would utilize 135 MW of its entitlement to meet load, sell 40 MW of its capacity under the terms of a contract that would contemplate receiving 95 percent of a market price of $45 per MWh, and sell "off peak" energy at 85 percent of the market price of $45. In order to fully cover debt service, operation & maintenance (O&M), and related costs of ownership, under this scenario the cost for this portion of the members' requirement would need to be minimally priced at $39.79 per MWh.

Option 2 describes a scenario in which SME would secure an equity position in a new 250-MW facility commensurate with 175 MW of the unit's total 250 MW. SME would utilize 135 MW of its entitlement to meet load, sell 40 MW of its capacity under the terms of a contract that would contemplate receiving 95 percent of a market price of $45 per MWh, and sell "off-peak" energy at 80 percent of the market price of $45. In order to fully cover debt service, O&M, and related costs of ownership, under this scenario the cost for this portion of the members' requirement would need to be minimally priced at $40.92 per MWh.

Figure 1-4. Comparative Cost/Equity Buy Options



Option 3 analysis describes a scenario in which SME would secure an equity position in a new 150-MW facility commensurate with 95 MW of the unit's total 150 MW. SME would utilize 95 MW of its entitlement to meet load, purchase 40 MW of its capacity under the terms of a contract that would contemplate a market price of $45 per MWh, and sell "off peak" energy at 85 percent of the market price of $45. In order to fully cover debt service, O&M, related costs of ownership and the difference in cost for the energy purchase under this scenario the cost for this portion of the members' requirement would need to be minimally priced at $52.62 per MWh.

Option 4 describes a scenario in which SME would secure an equity position in a new 150-MW facility commensurate with 95 MW of the unit's total 150 MW. SME would utilize 95 MW of its entitlement to meet load, purchase 40 MW of its capacity under the terms of a contract that would contemplate a market price of $45 per MWh, and sell "off peak" energy at 80 percent of the market price of $45. In order to fully cover debt service, O&M, related costs of ownership and the difference in cost for the energy purchase under this scenario the cost for this portion of the members' requirement would need to be minimally priced at $53.87 per MWh.

Based on foregoing economic analysis, SME's best option is to build generation capacity capable of meeting peak member system requirements, as expressed in either Option 1 or Option 2.

1.4.4 SUMMARY AND CONCLUSION

Based on SME's existing and projected capacity and energy requirements, in 2009 it will have a resource requirement or deficit of approximately 116 MW. By 2012 this deficit will grow to approximately 160 MW as the BPA power purchase agreement is phased out. Given the price volatility of natural gas and the lack of viable wholesale power purchase options, SME needs to seriously consider developing an alternate wholesale power supply resource. This alternate wholesale power supply resource could take the form of participating in the development of a variety of generation options to complement its ability to make limited purchases from WAPA and purveyors of an EPP like wind-generated power.

Acknowledging the difference between base load production and peak requirements, SME has concluded it would best serve the interest of its members by integrating base load capacity into its resource portfolio. Given the volatility of the regional supply market, and the high cost of resorting to the open market to meet peak requirements, SME believes that the likelihood of being able to offer affordable, reliable, and stable wholesale electric energy and related services will be much greater if it owns generation capacity capable of covering system peak requirements as specified in the load forecast. The forecasted prices for market power justify resource ownership that will, at a minimum, cover member system peak requirements (PowerLytix, 2006).

Several important issues must be addressed in detail to gain a clear understanding of the total cost of resource development. Those issues include, but are not limited to, debt service, cost of operation and maintenance including fuel, operating reserves, spinning reserves, load control area services and facility dispatch. SME is not contemplating a "merchant facility" (whose main purpose is to profit from power sales to outside customers on the open market) and must therefore ensure service in the event the project ceases production on a scheduled or unscheduled basis. To that end, SME has engaged in discussions with large regional hydroelectric-based generators which have expressed significant interest in working with SME to ensure that the total output of a contemplated facility would be economically dispatched, with the participating generators sharing risk and benefits. The estimated costs in the models shown in Figure 1-4 reflect the cost of this service.

The member systems of SME have had a long history of meeting the wholesale electric service requirements of the consumers they serve with affordable electric energy and related services. However, the wholesale supply industry in this region and the country has changed, requiring the members of SME to view possible participation in this proposed project as a way for SME to serve its members with a much higher level of confidence than can be afforded by a traditional power purchase agreement – particularly in a restructured wholesale electric supply market place.

In demonstrating to RD how to best meet its power supply obligations in the face of a looming phase-out of its main existing power source, SME concluded that owning its own source of electric generation would be in the best interest of its member systems. SME proposes to construct a 250 MW coal-fired power plant near Great Falls, Montana. The Proposed Action also includes four 1.5 MW wind turbines, construction of approximately 14 miles (23 km) of

transmission lines, substation facilities, raw water, potable water and wastewater pipelines, and about six miles of railroad tracks for delivery of coal to the plant, in addition to other components.

In addition to providing a reliable supply of electricity at an affordable price, the Proposed Action would furnish local employment in the Great Falls area during construction and operation. It would also provide tax benefits for Cascade County and the City of Great Falls, as well as other associated socioeconomic benefits, which are discussed in the socioeconomics section of Chapter 4.

1.5 PUBLIC PARTICIPATION

1.5.1 SCOPING PROCESS

NEPA and MEPA require agencies to invite public involvement prior to decision-making on proposed actions that may affect the environment. "Scoping" is the process of soliciting input from "stakeholders" – including Tribes, the public (both private citizens and non-governmental organizations or NGO's), and other agencies – at the outset of a NEPA/MEPA analysis. Not only may the information obtained from interested and knowledgeable parties be of value in and of itself, but the perspectives and opinions as to which issues matter the most, and how, indeed whether, the agency should proceed with a given proposed action are equally important. Input from scoping thus helps shape the direction that analysis takes helping analysts decide which issues merit consideration. Public input also helps in the development of alternatives to the proposed action, which is an integral part of NEPA and MEPA.

1.5.1.1 RD Scoping

RD and DEQ conducted two separate scoping processes to solicit public input on SME's proposed power plant. Scoping by RD came first, and was carried out in the fall of 2004. RD published a Notice of Intent (NOI) to hold a public scoping meeting and prepare an EIS in the *Federal Register* on September 24, 2004. A public scoping meeting was held on October 13, 2004 at the City Civic Center in Great Falls, Montana. The public was notified of the meeting by advertisements in the local newspapers, including the *Billings Gazette* and the *Great Falls Tribune*. The scoping meeting was arranged in an open house format, featuring a series of information stations. Each station was staffed by SME representatives or their consultants; RD, DEQ, and DNRC representatives were also present. Fact sheets and other informational handouts were available, as was a comment form for attendees to complete. Based on sign-in sheets, a minimum of 74 people attended the public scoping meeting.

A total of 13 written responses containing 40 comments were received during the RD scoping comment period that ended November 15, 2004. Public comments were received in the form of direct letters mailed to SME and RD, emails, verbal comments, and completed comment forms. All written comments were entered into a spreadsheet for analysis and summary.

Figure 1-5. Open House Scoping Meeting in Great Falls Civic Center on October 13, 2004

In addition to the public meeting, two agency scoping meetings were held, the first at DEQ offices in Helena on the afternoon of August 12, 2004, and the second at the Civic Center in Great Falls on the morning of October 12, 2004, with a site visit afterwards. Also, on October 5, 2004, RD sent a letter containing a brief project description to various federal and state agencies, followed on October 22, 2004 by copies of the Alternative Evaluation Study and Site Screening Study provided by Stanley Consultants. Agencies that responded included the federal Natural Resources Conservation Service (NRCS), U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Federal Aviation Administration, Montana Department of Transportation, Montana Historical Society (Montana's SHPO), and the Lewiston Water Resources Office.

SME also held 20 or more meetings with the Great Falls City Commission, school districts, environmental groups, and individual cooperative memberships. The proposed power plant was discussed in 27 articles in local newspapers. These meetings and this media coverage occurred before, during and after the formal public scoping period.

RD issued a scoping report that summarizes the process as well as input received from the public. This summary is available at the RD website at: http://www.usda.gov/RD/water/ees/pdf/sme_RDscopingcomments.pdf .

1.5.1.2 DEQ Scoping

Supplemental to the scoping carried out by RD in the fall of 2004, DEQ conducted additional scoping in the spring of 2005 to comply with Montana procedures. The DEQ public scoping meeting was held on April 18, 2005 at the Great Falls Civic Center and the 30-day public scoping period lasted from April 6 to May 6, 2005. The public was notified of the scoping meeting and comment period by advertisements in the local newspapers, via State websites and through specific invitations. There were 45 people registered on the attendees' list at the April 18 meeting; others were present who did not sign the attendance list.

A total of 38 written responses containing 137 comments were received from the public and agencies during the scoping comment period. Comments were received in the form of direct letters mailed to DEQ, emails, and completed comment forms. All written comments were entered into a spreadsheet for analysis and summary.

DEQ also issued a report summarizing its scoping process as well as input received from the public and agencies. This summary is available at the DEQ website at: http://deq.mt.gov/eis/SME_Scoping/MDEQScopingRprtFinal.pdf .

Subsequent to both the RUS and DEQ scopings, SME has continued to meet with the Great Falls City Commission and other groups. There have also been numerous articles in local newspapers.

1.5.2 FORTHCOMING OPPORTUNITIES FOR PUBLIC PARTICIPATION

Upon release of the Draft EIS (DEIS) to the public for review and comment, RD and DEQ will publish notices in the *Federal Register*, local newspapers, and State websites informing the public of its availability. In addition, news releases will be sent to the print and broadcast news media in Great Falls and Montana and notices will be sent via U.S. mail to individuals, NGOs and agencies which previously expressed interest in continuing to participate in public review of the proposed power plant.

The day U.S. Environmental Protection Agency (EPA) publishes a Notice of Availability in the *Federal Register* marks the beginning of a 45-day formal comment period on the DEIS. This period may be extended to 60 days upon request. During the DEIS comment period, RD and DEQ will conduct a public hearing in the Great Falls area. Concerned citizens and groups may attend this meeting, learn about the findings presented in the DEIS, and submit written or oral comments to RD and DEQ for consideration.

By law, RD and DEQ must respond to all substantive comments received during the designated comment period. All comments and responses to comments will be included as one or more appendices in the final EIS (FEIS). Any changes to the DEIS necessitated by these comments will also be reflected in the FEIS. Upon publication of the FEIS, interested groups may once again offer comments on this document and the proposed action. However, RD and DEQ do not plan to respond to these comments.

1.6 ISSUES DEVELOPMENT

1.6.1 KEY ISSUES

Significant or key issues are intended to form the basis of the NEPA/MEPA analysis. In other words, they define the scope of the analysis. Once the scope has been defined, the project purpose and need and key issues govern the range of reasonable alternatives that will be considered in the environmental analysis. Alternatives must at least partially meet the project purpose and need and address one or more of the key or significant issues. This section presents the key issues identified during scoping. These issues will define the scope of the NEPA/MEPA analysis and the alternatives considered. The italicized text indicates how RD and DEQ will evaluate and estimate effects relative to those issues.

Issue 1: Soils and Topography

Construction would involve excavation and disturbance of soils as well as certain permanent changes to topography on whatever site is selected to build the power plant. In addition, waste management could potentially impact soils. *Effects are predicted by evaluating the extent to which the proposed action and connected actions may contribute to soil erosion and contamination.*

Issue 2: Water Resources

The proposed action would both use raw water and discharge waste water. In addition, during construction there would be potential for erosion, turbidity and sedimentation from runoff during storm events. In addition, comments from the public on water issues were received during scoping. Some of these comments expressed concern regarding pollution of water resources resulting from power plant emissions or discharges, while others related to water rights and usage, specifically the use of Great Falls water rights for the project and the usage of water in a drought condition. *Effects on water quality in the Missouri River are predicted by comparing the existing water quality conditions with characteristics of the projected discharge. Effects on water quantity/resources in the Missouri River are predicted by comparing projected withdrawals with flows in the river.* [Note that, as currently planned, the Proposed Action would not discharge waste water directly to the Missouri River, but into the City of Great Falls' waste water treatment system.]

Issue 3: Air Quality

Even though it would utilize the latest Best Available Control Technology (BACT) and be considered a state-of-the art, "clean coal" facility, and be permitted by the State of Montana, the proposed plant would emit a variety of pollutants to the air, as do all fossil fuel thermal electric generating stations. During scoping, numerous commenters expressed concerns about the potential impacts of emissions from the coal-fired plant, including mercury. *Effects on air quality are predicted using the most recent technical models such as CALPUFF developed and applied by specialists in the field and by a review of the published scientific literature on mercury emissions, transport, deposition, uptake, and toxicity.*

Issue 4: Biological Resources

During scoping, the U.S. Fish and Wildlife Service identified two federally-listed species may be potentially occur in the project area – the threatened bald eagle and the threatened Canada lynx. The Service requested RD to determine possible impacts to species of federal concern. In addition, species of concern within the State of Montana could potentially be present on the project site. *Effects on biological resources, including federal and state-listed species, are predicted, first, by conducting field surveys of the subject locations, including right-of-way corridors for pipelines or transmission lines to inventory which habitats occur and which species may potentially occur; and second, by considering the various elements of the proposed action which may lead to changes in habitat (including direct conversion and fragmentation), and thus, changes in wildlife populations, or that may directly induce mortality.*

Issue 5: Noise

Construction and operation of a coal-burning power plant near Great Falls could add to noise levels in the area from construction equipment, truck traffic, trains, the vehicles of commuting workers, and operation of the various components of the industrial facility. One commenter during scoping expressed concern about noise generation by the proposal. *Effects on the acoustic environment are predicted by a two-step process: 1) characterizing existing ambient noise levels (i.e. a noise profile) and 2) introducing known noise levels of equipment likely to be used in construction and operation. Using the Cadna-A Version 3.5 noise prediction software from DataKustik, noise level contours for the combined typical power plant equipment and train operations have been developed. .*

Issue 6: Recreation

Construction and operation of a major new industrial facility in the Great Falls area could hypothetically generate direct and/or indirect impacts on recreational facilities and opportunities in the area, in particular those related to the Missouri River and the Great Falls Portage National Historic Landmark. While no comments were received during scoping expressing concern about potential impacts specifically on outdoor recreation, concern was expressed about related issues, such as air, water, visual impacts, and wildlife. *Effects on recreation are predicted by characterizing existing facilities and opportunities in relation to proposed project sites, characterizing the key elements and processes of the proposed action that might affect recreation, and estimating qualitatively the extent to which these elements or processes may enhance or detract from the recreational experience.*

Issue 7: Cultural Resources

The Great Falls area contains important historic/cultural resources, such as the Great Falls Portage National Historic Landmark commemorating the Corps of Discovery (Lewis and Clark Expedition). Construction of a power plant could conceivably impact cultural resources in a variety of ways. During scoping, the Montana State Historical Society (which is the State Historic Preservation Office or SHPO in Montana) stated that the project may have the potential to impact cultural properties and recommended that a cultural resources inventory be conducted. *Effects on cultural resources are predicted by conducting an inventory of cultural resources, including traditional cultural properties, using established methodologies, and evaluating the likely impact of specific components of the proposed action and alternatives on these resources.*

Issue 8: Visual Resources

Construction of a large power plant and related facilities such as transmission lines in an undeveloped area could potentially affect scenic quality and visual resources. Several comments expressing concern about possible visual impacts were received by members of the public during scoping. *Effects on visual resources and scenery are predicted by using a methodology developed by the Bureau of Land Management (BLM) called the Visual Resource Management (VRM). VRM consists first of a visual resource inventory to determine the quality of existing scenic values at affected sites followed by an analysis using a visual contrast rating process,*

which involves comparing the project features with the major features in the existing landscape using the basic design elements of form, line, color, and texture. (Visual impacts on federal mandatory Class I areas are addressed under Air Quality.)

Issue 9: Transportation

Both construction and operational phases of the proposed action could potentially affect transportation in the Great Falls area – including road, rail, and air transport. One commenter raised the issue of traffic impacts during public scoping. Also during scoping, the Federal Aviation Administration (FAA) advised RD that a form (7460) would need to be completed for the proposed power plant that would enable FAA to prepare a study of possible impacts on air traffic at Great Falls International Airport. *Effects on transportation are predicted by first establishing the proximity of transportation infrastructure and current use patterns, particularly Average Daily Traffic (ADT) (if available) on nearby roads and streets, and then estimating traffic generated by phases of the proposed action using procedures developed by the Transportation Research Board.*

Issue 10: Farmland and Land Use

Construction of a power plant on an undeveloped site in the Great Falls area could entail the permanent conversion of farmland to industrial land use. During scoping, the Natural Resources Conservation Service (NRCS) requested RD to document any such loss of farmland according to the procedures of the Federal Farmland Protection Act, which applies to actions of all federal agencies that may directly or indirectly lead to the irreversible conversion of agricultural lands to non-agricultural land uses. There was some public concern about farmland conversion as well. *Effects on farmland and land use are predicted by documenting the type and quality of farmland present on proposed building sites and evaluating any loss of farmland according to federal and state criteria.*

Issue 11: Waste Management

Operation of a power plant would generate considerable quantities of solid waste, particularly ash, which is a residual of coal combustion. Disposal of ash was the subject of some public concern during scoping. *Effects from waste management are predicted by characterizing both the quantity and quality of the waste stream and examining how proposed waste management practices will dispose of wastes.*

Issue 12: Human Health and Safety

Construction and operation of any large industrial facility involves certain risks to human health and safety. A coal-fired power plant in particular raises questions about possible effects on human health and safety from air emissions. During scoping, members of the public expressed concern about air pollution-related diseases such as cancer, asthma, and autism (the latter from mercury emissions in particular). *Effects on human health and safety are predicted by examining whether or not the proposed facility would comply with the National and Montana Ambient Air Quality Standards (for "criteria" pollutants) as well as with BACT requirements, and in the case*

of mercury, by reviewing what science knows and does not know about mercury emissions, deposition, biological uptake, bioaccumulation/biomagnification, and toxicity, and by reviewing applicable federal and state standards for emissions from power plants.

Issue 13: Socioeconomics

Construction and operation of the proposed power plant would entail impacts on employment, income, taxes, property values, and population in the Great Falls area. Several people commented on these possible effects during public scoping. *Effects on socioeconomics are predicted by characterizing the existing socioeconomic environment of the Great Falls/Cascade County area, quantifying projected direct employment associated with construction and operation of the power plant, and using an employment multiplier for Cascade County from the Montana Governor's Office of Economic Opportunity to estimate direct and induced employment.*

Issue 14: Environmental Justice/Protection of Children

Two Executive Orders issued by the president of the United States require all federal agencies to examine possible disproportionate impacts of the proposed action on minority and low-income populations and children. *Effects on environmental justice and protection of children are predicted by establishing the proportion of minorities and low-income populations in the affected area and determining whether some facet of the proposed action would lead to disproportionate, adverse impacts on them.*

1.6.2 ISSUES CONSIDERED BUT DISMISSED

RD and DEQ reviewed the issues raised during scoping and concluded that some issues raised by the public were outside the scope of this EIS, were items that are addressed by law or regulation, were items that are unrealistic or unreasonable to implement, or were insignificant issues that are covered by larger and significant issues. The rationale for eliminating these issues is provided in the descriptions below.

- Wetlands – Wetlands are not dismissed entirely from the EIS but are not considered a key issue because of their virtual absence from the proposed project sites. Where pipeline or power line corridors cross wetlands or other "waters of the United States" under the jurisdiction of the U.S. Army Corps of Engineers and protected by Section 404 of the Clean Water Act, no permanent fill would be placed into these waters and at most there may be temporary disturbance at stream crossings.

- Burning fuels other than coal in the proposed power plant – Based on recent experience with at least one other Montana generating station, some concern was expressed that SME's power plant, once operational, may attempt to burn fuels other than coal. However, the Air Operating Permit issued by DEQ would specify that coal, and only coal, could be combusted to produce steam and generate electricity, except when fuel oil is used during start-up and shutdown of the Circulating Fluidized Bed (CFB) boiler.

- Reclamation/Remediation – The EIS does not discuss potential future reclamation or remediation for the plant site were it to be decommissioned or shut down at some point in the future. Given the projected 30-50 year life of a coal-fired generating station, decommissioning and cleanup were deemed beyond the time frame of the EIS. Furthermore, the plant and surrounding property on which ash may be disposed would be managed in such a way that when the facility closes, it would not leave behind contamination and pollution problems. Coal-fired power plants are not like nuclear power plants, for which decommissioning and removal of materials and components contaminated by radioactivity are major issues.

- State solid waste exclusion for on-site disposal of ash – The EIS does not consider possible changes to law.