Report

Review and Evaluation of Kentucky Mountain Power Site Assessment Report

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July 12, 2002

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Prepared for

Kentucky State Board on Electrical Generation and Transmission Siting
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SECTION A.
General Statement

This document is the first review of a Site Assessment Report (SAR) submitted to the Kentucky State Board on Electrical Generation and Transmission (Board). The SAR was submitted by Kentucky Mountain Power, LLC (KMP) to the Kentucky Public Service Commission (PSC), serving as staff to the Board. PSC staff retained BBC Research & Consulting (BBC) to perform this review. KMP has submitted the SAR to support its application for a certificate to construct a merchant electric generating facility in Knott County under SB 257 (the Act), passed by the General Assembly of the Commonwealth of Kentucky in 2002. The provisions of this Act are embodied in KRS 278.

Provisions of the Act Establishing the SAR Review Process

The Act defines a class of merchant power plants and requires them to obtain construction certificates as a prerequisite to the commencement of actual construction activity. The Act created the Board and gave it the authority to grant or deny construction certificates requested by individual applicants. The Board is an arm of the PSC for administrative purposes.

The Act created the application process and, within the process, a series of steps for preparing and submitting this report:

- The applicant files for a construction certificate and pays the fees.
- The applicant submits required items, including an SAR.
- If it wishes, the Board may hire a consultant to review the SAR and provide recommendations about the adequacy of the information and proposed mitigation measures. The Board, at its discretion, may direct the consultant to prepare a separate SAR.
- The consultant must deliver the final report so the Board can meet its own statutory decision deadline — 90 days or 120 days from receipt of an administratively complete application, depending upon whether the Board will hold a hearing.
- To provide adequate time for public noticing, the SAR review is to be completed within 30 days of receipt of an administratively complete application.

Implementing the First SAR Review Process

KMP's application has triggered the first SAR review process to occur under the Act. Through the PSC, the Board hired BBC as the consultant to conduct the SAR review, including a site visit, follow-up data collection with the applicant and a limited amount of separate data collection and additional evaluation.

SAR Review Methodology

BBC proceeded in this sequence of tasks:

- Conducted a brief review of secondary data sources to obtain background information and geographic setting for the KMP project;
- Conducted a limited review of relevant evaluation criteria to identify potential issues and assessment approaches to serve as benchmarks for the adequacy review;
- Upon receipt of the site assessment and application, reviewed its contents;
- Identified additional information we deemed useful for a thorough review, and submitted questions to the applicant via the Board;
- Conducted the required site visit, including obtaining oral and written information supplied by the applicant, over a period of one week in June of 2002;
- Completed interviews and data collection with a number of outside sources as sourced in this document; and
- Compiled and incorporated all of the foregoing in the analysis.

Report Format

This report is structured to be responsive to KRS 278 and our contract. It begins with this general statement which introduces the review. In Section B of the report, we present the executive summary. Section C offers detailed findings and conclusions of the study, and in Section D, we present the detailed recommendations concerning mitigation measures and future Board actions.

Certain Limitations

There are aspects of this first SAR review process that reflect inherent limitations. These must be understood in utilizing this report for decision-making purposes.

Since this is the first application and the first review, all parties have been required to utilize judgment as to what information is relevant and what level of detail is appropriate. This relates to project components, geographic extent of impacts and assessment methodology. PSC staff, the applicant and BBC have worked together to overcome these issues.

Finally, it is characteristic of merchant power plants that their planning process is iterative. In other words, at certain points in time, the applicant may have articulated the features of the plant and its appurtenances to a certain degree, but may be awaiting other commitments before taking the project to the next level of detail. For instance, fuel and limestone supply sources are not finalized as of this writing. BBC's review attempts to bracket and otherwise incorporate these uncertainties and ensure through appropriate mitigation measures that they do not create undue siting impacts later on.

SECTION B.
Executive Summary

This document is the first review of a Site Assessment Report (SAR) in compliance with Enrolled Act SB257, Section 5 which became law in 2002. The requirements of this law are now embodied in a new section of KRS, Chapter 278. To carry out this law, the Kentucky Public Service Commission (PSC) staff serves as staff to the Kentucky State Board on Electrical Generation and Transmission Siting (Board). The PSC received an SAR from Kentucky Mountain Power, LLC (KMP), a subsidiary of EnviroPower, LLC on May 31, 2002 related to the KMP project. The PSC staff retained BBC Research & Consulting (BBC), a Denver-based firm, to review the SAR for the PSC and the Board. BBC was directed by PSC staff to review the SAR for adequacy, visit the site and conduct supplemental research where necessary and to provide recommendations about proposed mitigation measures. This is the summary of BBC's final report, which encompasses the SAR review, establishes standards for evaluation, summarizes information from the applicant, notes deficiencies, offers supplemental information and draws conclusions and recommendations related to mitigation. Issues outside the scope of SB257, Section 5, such as regional economic impact, electricity market or transmission system effects and broader environmental issues were not addressed in this engagement.

Implications of This First SAR Review

It is important to recognize the implications of this first SAR and this first review. The applicant did not have precedent or standards to follow in preparing the SAR. Further, not all of the relevant aspects of the construction and operation plan for KMP have been finalized. For instance, the specific sources of the coal fuel and limestone have not been placed under contract. Given these circumstances, BBC has endeavored in this report to establish a precedent for the type of impact information which should be provided by future applicants, and at the same time has worked with KMP and other sources to produce that information for this review. This document represents BBC's best effort to meet these objectives within the 30-day performance period.

Description of the Proposed Facility/Site Development Plan

The SAR provides a description of the KMP project in terms of surrounding land uses, legal boundaries, access control, facility location, access control, utility service, setback requirements and noise levels. KMP is a proposed 520-megawatt electric generating plant located in Knott County, approximately eight miles northeast of the City of Hazard in eastern Kentucky. Conclusions with respect to other descriptive elements of the facility follow:

- Surrounding land use — The KMP plant site is defined by KMP as a 195 acre parcel containing the location of the proposed plant. This site is located within a total area of about 4,000 acres that KMP holds under lease. The leaseholding, in turn, is situated within a 17,000-acre active coal mine known as Starfire. There are no homes within two miles of the plant, but beginning about two and one-half miles from the plant, there are approximately 250 residential or small commercial properties located mostly in the valley below the elevated, reclaimed mining area containing the leasehold and the site. Robinson Forest Wildlife Management Area (WMA) is located within two miles

to the northwest. The Starfire Mine contains a wildlife viewing area where visitors periodically come on-site to view elk or other species. A single home is located across the river from the proposed diversion point of the KMP water supply and pumping station on the North Fork of the Kentucky River, about 20 miles from the plant site.

- Proposed access control and security — The company has agreed to provide access control and security consistent with current industry standards, and its water supply contractor, U.S. Filter Corp., will also secure the pumping facilities and the water diversion structure.

- Utilities — Gas service has been identified as forthcoming from Equitable Production, but not yet contracted. U.S. Filter Corp. will provide water and wastewater service. The water system will include the diversion structure, a pumping station, about 20 miles of 30-inch buried pipe, pressure reducing valves, a reservoir and a treatment plant within the leasehold. KMP will interconnect with the American Electric Power (AEP) electric transmission system.

- Setback requirements — As KMP has currently defined the site (as the 195 acre parcel within the leasehold), the site does not meet the setback requirements under the legislation according to PSC staff interpretation.

- Other facility site development plan descriptions provided in the SAR — Legal boundaries; location of facility buildings, transmission lines, structures; location of access roads, internal roads and railways; compliance with applicable setbacks; and noise levels (addressed in a subsequent section of the SAR). These materials appear to be included as outlined in KRS 278, Section 5.

Compatibility with Scenic Surroundings

Visual impact analysis commonly includes a description of the visual setting, visual features of the facility and its pertinent components which might affect visual resources, an identification of places where humans might observe the facility or its components and an evaluation of visual impacts and its compatibility with the existing setting. The KMP project site and leasehold are surrounded by a large, active coal mine for which the power plant activities are considered visually compatible. The topography and vegetation surrounding the reclaimed mining area containing the site and the leasehold will render visual impacts to be negligible or non-existent. This conclusion probably applies to cooling tower plumes and stack emissions, although little information about cooling tower plumes has been identified or reviewed by BBC. Under certain visibility circumstances, the stack will be visible from parts of the Robinson Forest WMA. It is possible that the house across the Kentucky River from the diversion structure and pump house will experience some visual impairment from the pump house — a two-story structure from the landward side. Scenic compatibility issues are likely to arise if project-related traffic, especially truck traffic, is allowed to migrate off the major highways and the proposed new access road to the plant.

Potential Changes in Property Values for Adjacent Property Owners

The central issue related to property values is whether or not, and to what extent, property values of other land owners will increase or decrease as a result of the KMP development or any of its appurtenances. The focus of BBC's evaluation is upon approximately 250 property owners situated at distances of over two miles from the plant site in the Troublesome Creek valley and valleys of its tributaries, and, from a broader standpoint, property owners in the region. BBC concludes that minimal negative effects, if any, in property values of nearby property owners will occur as long as project-related traffic avoids those areas. The buffer of the 17,000-acre coal mine, the fact that residential properties are located in the valley, whereas the KMP facility is located in the midst of a large area of reclaimed mine land at a higher elevation, and the presence of dense vegetation tends to buffer potential negative effects. Within the leasehold, development of the industrial park and the golf course will increase those parcel's property value, and a modest increase in property values might occur in the region, especially if construction and operational employees are mostly hired locally.

Expected Noise from Construction and Operation

The key issues for noise impacts stem from construction activities, "steam blows" which occur prior to plant start-up, boiler pumps, project-related traffic and noise from the water diversion facilities along the North Fork of the Kentucky River. BBC's analysis compares noise levels from these sources to presumed ambient noise levels and project-related noise at sensitive receptor sites where humans visit or reside. The topography and vegetation, coupled with the baseline setting of an active coal mine, will make most noise effects from the project itself negligible, with the exception of the initial steam blows. Noise impacts from the water pumps are not expected to be significant relative to existing road and rail traffic at the location, although no studies have been performed. Noise from the traffic will not differ substantially from baseline conditions if coal and limestone trucks remain by and large on KY 80 and KY 15.

Impacts on Land-based Transportation

The KMP project will rely upon trucks for hauling its coal fuel and limestone. Construction and operational employees will also commute to the site via roadways. Rail will be used only to deliver certain construction components to the siding near Typo, approximately ten miles from the site. The key issues are the magnitude and nature of traffic increases on particular roadways and the effects of those increases on congestion, safety, road maintenance and fugitive dust.

The routes most likely affected will be KY 80, KY 15, KY 1087 and possibly KY 1146. During peak construction (where 800 employees will be on site) there might be as many as 1,900 additional vehicle trips a day, primarily on KY 80 after the new access road is built from KY 80 to the plant site in the first year of construction. This would represent about a 23 percent increase above current 2001 averages along that roadway. BBC believes that these impacts might be overstated because the industrial park appears unlikely to be developing by the time power plant construction occurs. Regardless, the capacity of KY 80 greatly exceeds the combined volume of project-related and baseline traffic. During operation, KY 80 might experience traffic increases as high as 24 percent, but again, the capacity of that roadway is more than adequate for this increase in traffic.

Fugitive dust (dust produced by industrial operations and subject to regulation for mining operations) will be reduced from baseline conditions once the proposed new paved road to the plant site is constructed and available for use by the mine, as well as the power plant. Road maintenance costs will increase, although property and severance tax revenues attributable to KMP and related coal demand can be used to defray these costs.

Road traffic increases could cause considerable impacts if traffic migrates away from KY 80, KY 15 and the newly constructed access road. Congestion, safety issues, dust and road maintenance costs will become significant issues if such migration occurs.

Recommendations

BBC has noted a number of deficiencies in the SAR within this review document. However, we believe that these deficiencies have been largely addressed through supplemental research and investigation, including additional information provided by the applicant. We believe that further studies would not modify the findings and conclusions, and therefore recommend that the applicant not be required to revise its initial SAR.

Specific mitigation measures set forth in Exhibit B-1, below, summarize BBC recommendations for KMP. Many of these measures were suggested by KMP in the SAR or during discussions with company officials, but it is important to ensure that these mitigation measures become commitments to reduce the potential for negative impacts.

Exhibit B-1.
Summary of Impacts and Recommended Mitigation

SAR Criteria	*Level of Impact/Deficiency*	*Recommended Mitigation*
Description of Facilities	Supplemented information adequate	Provide access control to meet industry standards Re-define the portions of the leasehold included in the "site" to meet setback requirements and fully contain security fence.
Compatibility with Scenic Surroundings	Limited effect from tallest structures	Select natural background color for smoke stack and water pump house and diversion structure
Property Values	Likely modest effects, if any	Hire construction and operation workers and purchase materials locally to maximum extent practicable
Noise Impacts	Negligible effects, except for steam blows through standard design and construction practices	Install silencers. Incorporate boiler pump enclosures, pump house baffling in design
Traffic Impacts	Significant increases, but substantially below road capacity if confined to major highways	Build new bridge and access road. Confine coal, limestone trucks and employee traffic to KY 80, KY 15 and new access road to maximum extent possible

These mitigation measures are discussed in Sections C and D of this review.

BBC recommends that the Board approve the application for a certificate to construct based upon the siting considerations addressed in this review, assuming that the project is developed as described in the applicant's SAR and supplemental information, and that the mitigation measures above are implemented appropriately. If these assumptions are correct, there are unlikely to be significant unmitigated impacts from construction and operation of the KMP project regarding scenic compatibility, property value, noise impacts or traffic.

If it is within the purview of the Board, a project impact monitoring system should be considered to make sure that the project is constructed and operated as it was represented during this process. A number of the KMP project plans and agreements have not been finalized at the time of this review, and these might have a material effect on the project impacts. Secondly, based upon past experience, construction and operation of a project of this nature is inherently uncertain and the nature of impacts is correspondingly uncertain. The Commonwealth of Kentucky, local government and residents in the region would be well served if a bi-annual report were to describe actual project effects by discipline and related impact issues, if any. This would facilitate timely actions by the involved parties to maximize the positive effects and minimize any negative impacts from KMP.

SECTION C.
Findings and Conclusions

This section provides detailed review and evaluation of each element of the SAR as prescribed in Section 5 of KRS 278. It is organized into five subsections:

1. Description of Proposed Facility/Site Development Plan
2. Compatibility with Scenic Surroundings
3. Potential Changes in Property Values for Adjacent Property Owners
4. Expected Noise from Construction and Operation
5. Impacts on Land-based Transportation

Although the Board will likely consider economic impacts, transmission and other issues in making its decision, these are beyond the present scope of our inquiry and so are not addressed here.

Within each subsection, BBC has followed a consistent pattern. First, BBC describes generally accepted assessment criteria or methodology necessary to evaluate impacts of a project of this nature. Secondly, we summarize what relevant information was included in the initial SAR. Thirdly, we describe supplemental information about KMP, along with other information BBC was able to gather about the project and its impacts. Finally, BBC draws its own conclusions about KMP impacts and recommended mitigation. We believe that this format transparently presents the basis for our conclusions and recommendations.

Description of Proposed Facility/Site Development Plan

Potential Issues and Standard Assessment Approaches

As required by SB 257(5)(3)(A), the SAR must contain the following information:

- Subsection A-1 – surrounding land uses for residential, commercial, agricultural and recreational purposes;
- Subsection A-2 – the legal boundaries of the proposed site;
- Subsection A-3 – proposed access control to the site;
- Subsection A-4 – the location of facility buildings, transmission lines and other structures;
- Subsection A-5 – location and use of access ways, internal roads and railways;
- Subsection A-6 – existing utilities to service the facility;
- Subsection A-7 – compliance with applicable setback requirements as provided under subsections (2), (3), or (5) of Section 3 of SB 257; and
- Subsection A-8 – evaluation of the noise levels expected to be produced by the facility.

In the following, BBC addresses these required information items. To some extent, the required elements of the description of the facility and site development plan specified in the legislation overlap with topic-specific evaluations also required in the legislation. In particular, the legislation calls for specific evaluations of impacts on nearby property values, traffic and noise levels. Both the applicant's SAR and the BBC team's evaluation provide further detail on these topics in subsequent sections.

Information Provided in the Applicant's SAR

The required description of the proposed facility and site development plan is mainly set forth in Section 8.3 of the SAR. Other related or supplementary information comes from various other sections of the SAR.

Surrounding land uses. Section 8.2 identifies the location of the project as reclaimed portions of the Starfire Mine where KMP leases 4,000 acres for construction of the plant, the industrial park and the golf course. The plant "site" is defined by KMP as a 195-acre parcel containing the location of the proposed plant. This site is located within a total area of about 4,000 acres that KMP holds under lease. Section 8.3.1 describes the land uses surrounding the leased area:

- The properties adjacent to the leasehold are all permitted for surface mining with one exception, and

- The exception is a parcel to the northeast of the leasehold — owned by Appalachian Realty, a coal minerals company – and "expected ... [to] be permitted for mining activities in the future."

In Section 8.3.7, the discussion of applicable setbacks, the applicant indicates that the nearest residence is about 13,000 feet from the plant site. Additional information on surrounding land uses appears in Section 8.4, Scenic Compatibility of Power Plant, and in Section 8.5, Property Value Evaluation on p. 20 of the real estate appraiser's report.

Legal boundaries. Appendix A, as amended in the Response to Filing Deficiencies materials, presents legal descriptions of the tracts of land involved in the project:

- Fly Ash Tract No. 1, 23.37 acres;

- Fly Ash Tract No. 2, 521.15 acres;

- Lick Branch Water Impoundment Tract No. 3, 106.75 acres;

- Plant Site Property, 195.05 acres; and

- Access Roadway, 81.65 acres.

Appendix A also presents legal descriptions for the proposed Elk Run Business Park (3 tracts) and the proposed Elk Run Golf Course (1 tract). The four ancillary development tracts total about 1,150 acres.

Access control. In Section 8.3.3, the applicant describes the security and access control features of the project.

Security. KMP indicates that a security building will be located near the plant entrance that will be manned 12 hours a day. Security cameras will be present at the site and access during weekends or after hours will require use of a card key. Only authorized personnel would be admitted to the site.

Access control. A six-foot cyclone wire fence topped with barbed wire will surround the plant. There will also be a three-strand barbed wire fence around the "outer boundary" of the plant. (The location of the outer boundary is not defined or shown on any map, and it is not clear if this boundary is the boundary of the 195-acre Plant Site Property or another perimeter.)

Ash disposal areas will be fenced off in similar fashion to control access to the disposal areas. No public roads will access the ash disposal areas.

Location of buildings, transmission lines and other structures. Section 8.3.4, as amended, lists 12 "major buildings" to be built as part of the project. The section also references the site plan drawing. It is not clear that all of the features identified in the list in Section 8.3.4 are included in the map -- in particular, there appears to be no identified location on the map for the maintenance shop building, security building and limestone truck dump hoppers. The real estate appraiser's report submitted as Section 8.5, Property Value Evaluation, includes a map of proposed electric and gas lines to the facility.

Location/use of access ways, internal roads and railways. Road development within the plant site is noted in Section 8.3.5, and the reader is referred to the detailed plant drawing. No rail access to the site is planned. In Section 8.1, Introduction, the applicant describes the plan for a new access way from U.S. 80 to the plant.

Existing or proposed utilities. Section 8.3.6 notes that electric distribution lines and a gas collection system presently exist on the plant site and will be relocated during construction of the project.

Various sections describe the major utility extensions to support the project: an electric switchyard, transmission lines, high-pressure gas line and the water supply system.

- Section 8.1, Introduction, describes the proposed "regional water system;"
- Section 8.1 also describes natural gas service from Equitable Energy, LLC, via a proposed 6-inch main to the site;
- Section 5.0 indicates KMP will interconnect with AEP via one existing and two new 138 KV lines. One of the new lines will be built alongside the existing line to the AEP Beaver Creek substation;
- Section 8.2, Description of the Facility, describes the responsibility of U.S. Filter Corp. in the construction of the proposed water system and the handling of wastewater; and
- Section 8.5, Property Value Evaluation, indicates an approximate cost of $40 million for the proposed water system.

The map "Selected Utilities Proposed Route," included in Section 8.2 of the SAR, shows the general alignment of electric transmission and gas lines to the site.

Compliance with applicable setback requirements. The applicant discusses setback compliance in Section 8.3.7:

- The plant is located within 600 feet of the purchased property boundary and over 1,000 feet from the leased property boundary;
- There are no residential neighborhoods, schools, hospitals, nursing facilities or public or private parks within two miles of the proposed exhaust stack location; and
- The nearest neighbor is approximately 13,000 feet away from the plant site.

The applicant states that no local planning and zoning regulations apply to the unincorporated parts of Knott and Perry counties where the plant site and water storage reservoir are to be located. Section 3 of the Application contains a letter from Knott County stating there are no planning and zoning regulations in place at the site.

Evaluation of noise levels. Information on noise levels is found in Section 8.6 of the SAR, as amended by Section 6.0, Noise Evaluation, of the Response to Filing Deficiencies materials. BBC presents its assessment of the applicant's noise information later in this section of the report.

Supplemental Investigations, Research and Analysis

After reviewing the applicant's SAR, the BBC team sought to supplement the information provided in the SAR where necessary to more fully describe the proposed facility and site development plan. Interviews and additional data collection were conducted with the applicant, and the study team visited the plant site, the location of the future access road and the location for the water system intake structure along the North Fork of the Kentucky River. The following discussion focuses on the elements of the facility description and site development plan that the study team believed required further examination.

Surrounding land uses. Based upon the site visit, immediately adjacent land uses to the leasehold do appear to be entirely associated with coal mining activity as was indicated in the applicant's SAR.

As described in more detail later in this report section, there is more than one home located in approximately the same proximity to the site. In fact, approximately 250 properties may be located in the same general vicinity, more than two miles from the facility. These properties are believed to be about 90 percent residences, with the remainder comprised of small businesses.[1]

Proposed access control. In the course of discussions with KMP representatives during the study team's site visit, we requested further clarification and detail regarding the plans for access control and security. KMP representatives indicated that their intent is to employ standard industry practices for security and access control, and that they would modify security and access control appropriately for a 24/7 operation.[2] Further, as noted in the KMP response to the Board Staff's First Data Request, KMP intends to hire a third party operator for the facility who will be responsible for security.[3]

Based upon the BBC team's experience, we have provided a number of suggestions for security and access control at the end of this section.

Utilities. The BBC team requested documentation regarding the utility arrangements described in the site development plan. KMP indicated that a formal agreement has not yet been reached with Equitable Production for gas service, but this is expected to be a standard service contract.

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[1] Communication between Ary Postmaster and KMP, relayed to study team on June 22, 2002.

[2] Randy Bird and John Tate, personal communication, June 26 and 27, 2002.

[3] Kentucky Mountain Power, LLC's Response to Board Staff's First Data Request, July 2002.

KMP did provide both a map ("Waterline Right-of-way Map") of the proposed water conveyance system and a Term Sheet, dated August 1, 2001 and signed by both KMP and U.S. Filter Corp, that documented the details of the proposed water and wastewater service to the power plant. This term sheet described the facilities and services associated with constructing, operating and maintaining both potable and non-potable water service to the plant and associated facilities. The term sheet also describes similar commitments to provide wastewater treatment for domestic uses at the power plant and industrial park.

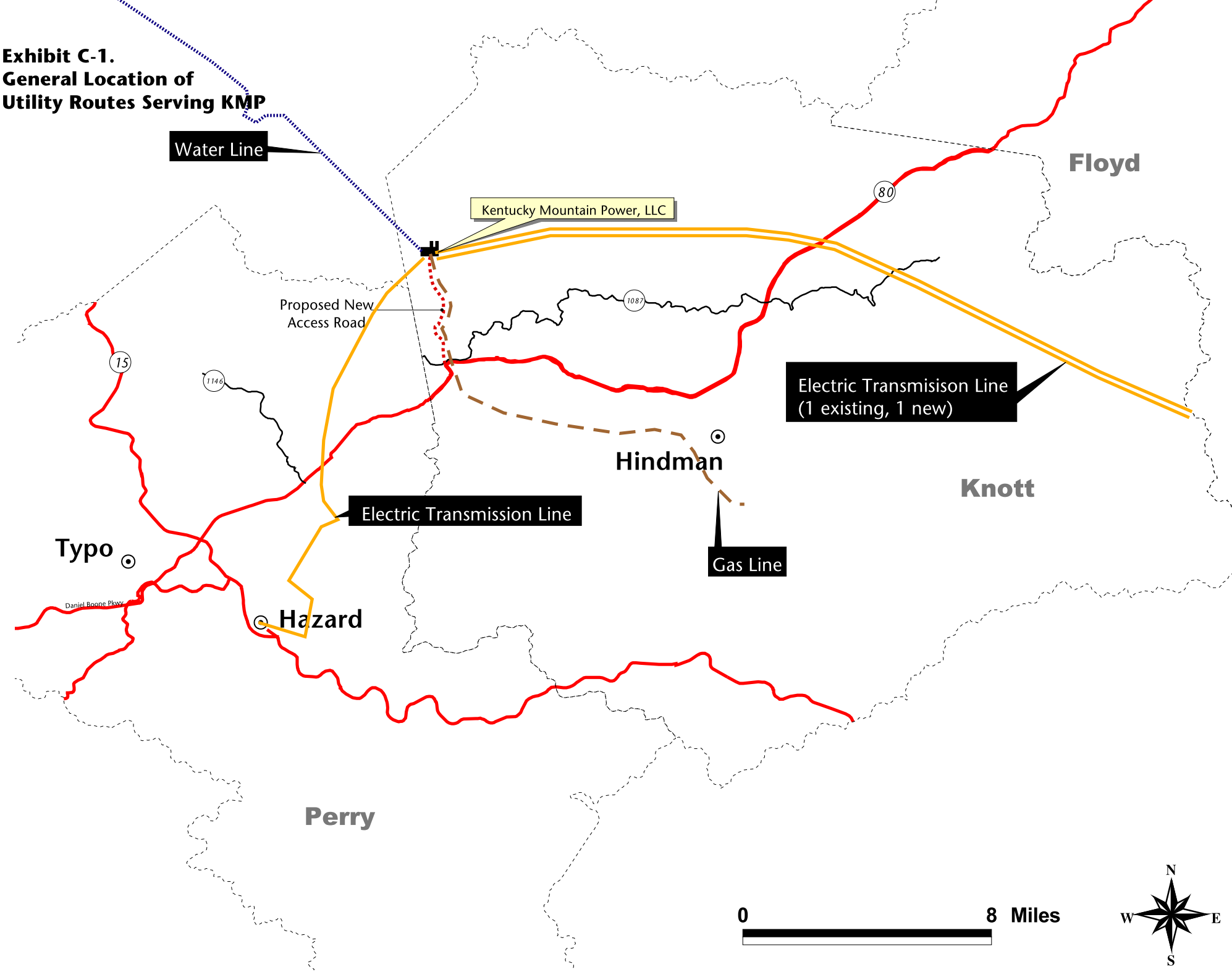
In addition to the water provided to the KMP plant, a telephone interview with U.S. Filter Corp. confirmed that one million gallons per day of water will be available to the industrial park/golf course. Potentially, the golf course may ultimately be served, at least in part, with treated wastewater for irrigation purposes. U.S. Filter Corp. is also engaged in discussions with local community leaders and others to seek ways to expand the water system to provide some service to private homes and businesses off-site, but it is uncertain at this time whether this additional service can be successfully incorporated into the water system.[4]

Apart from water and wastewater features within the leasehold, the proposed water system will also require a pumping station on the North Fork of the Kentucky River and approximately 19 miles of buried pipeline to reach Starfire Mine, plus four more miles of pipeline from the edge of the mine property to the power plant site. While the BBC team was unable to visit the full conveyance route, we did visit the location of the proposed pumping station. This facility would be located north of Kragon, along KY 15. The location is along a relatively deserted stretch of river, and it appears there is probably only one existing structure within 500 feet of the proposed pumping station. This structure, an occupied home, would be separated from the proposed pumping station by the KY 15 roadway and, at present, dense vegetation. The study team estimates this home is approximately 200 to 400 feet from the location of the proposed pumping station.

Exhibit C-1 illustrates the general routes of gas, electric and water lines to the site.

[4] Rob Nicklaus, US Filter Corporation, personal communication with study team, July 10, 2002.

Exhibit C-1.
General Location of
Utility Routes Serving KMP



Conclusions and Recommendations

Based upon review of the applicant's SAR, subsequent conversations with the applicant and additional data collected by the BBC team, we reach the following conclusions concerning the description of the facility and the proposed site development plan:

- The applicant has generally complied with the legislative requirements for describing the facility and site development plan. A few areas warranted further examination and information.

- As KMP has currently defined the site (as the 195 acre parcel within the leasehold), the site does not meet the setback requirements under the legislation according to PSC staff interpretation. KMP's response to the Board's First Data Request indicates the applicant does not believe the site qualifies under the legislative exemption for former coal processing facilities.[5] In order to avoid requiring an exemption, KMP should redefine the "site" to include additional portions of their surrounding leasehold in order to meet the 1,000-foot setback requirement.

- More information concerning nearby land uses was needed. While the site visit confirmed the distance to the nearest residence, it is important to recognize this residence is not isolated. Approximately 250 homes and small businesses are located in general proximity to the plant site.

- The plan for access control and security should be enhanced, and KMP has indicated a willingness to accommodate changes in this area. PSC staff analysis suggests the proposed location of the access control fence is, in part, outside the area specifically designated as the site. In addition, the proposed plan should follow industry standards in these areas:

  - Approved parking areas for employees.

  - Fenced, lighted plant perimeter.

  - Access to waste disposal areas must be locked.

  - Storage buildings with hazardous or dangerous chemicals must be locked.

  - Only personnel who have attended an induction course will be permitted to work on-site.

  - All employees and subcontractors working at the site must have a site security pass which must be carried at all times.

[5] Kentucky Mountain Power, LLC's Response to Board Staff's First Data Request, question and response number 37, July 2002.

- Entry to the site will be controlled, and only persons approved for work on the site will be allowed access. Access for site personnel will be via a security gate controlled by site security.

- Commercial vehicle drivers delivering/removing materials to/from the site must first register with KMP.

- Documentation of all drivers will be subject to examination (only those holding the necessary documents for the type of vehicle, plant or equipment to be driven, will be allowed on the site).

- All vehicles entering/leaving the site shall be subject to search by KMP security.

- Vehicle speeds on site shall not exceed 15 km/h unless there are signs indicating other limits.

- Agreements for most utility services appear to be in place, with the exception of a formal agreement on natural gas service to the plant site. Presumably, Equitable Energy will comply with all state and federal requirements for constructing and operating the gas line to the site, including any required mitigation. The extensive water conveyance system envisioned for this facility includes a riverside pumping station and 19 miles of 30-inch buried pipeline. Impacts of these related facilities, if any, should also be subject to this SAR.

Recommended mitigation. No mitigation measures specific to the description of the facility or the site development plan are identified in the applicant's SAR. The BBC team suggests the following two mitigation measures should be adopted:

1. KMP should modify their definition of the "site" to include additional portions of their leasehold in order to meet the setback requirements in the legislation and to fully contain the access control fence surrounding the plant.

2. The applicant should modify their access control and security plans to follow industry standards, as described earlier.

3. The water pumping plant should be designed and constructed to minimize its visibility and noise from KY 15 and the existing residence located in the area. Enclosing the pumps within a fully enclosed building, including internal noise baffling, and minimizing visibility by developing an appropriate exterior to the pumping plant and maintaining vegetative screening to the extent possible should minimize any impacts associated with this facility.

Compatibility with Scenic Surroundings

This section of the SAR review addresses the compatibility of the KMP project with the scenic surroundings. This component of the SAR is identified in Section 5 of KRS Chapter 278, Subsection (b).

Standard Methodology and Issues for Scenic Studies

Various government agencies throughout the country employ visual assessment methodologies based on professionally accepted techniques. These techniques are fundamentally consistent in their approach to evaluating the elements of a project and its compatibility with existing landscapes and other surroundings.

An example of a visual assessment methodology in use by a state power plant siting agency is the methodology employed by the staff of the California Energy Commission.[6] In California siting assessments, the assessment of potential incompatibility between a project and its scenic surroundings focuses on project structures, such as smoke stacks. Typically, the assessment also addresses project lighting and the potential for visible cooling tower plumes.

A standard visual analysis generally proceeds in this sequence:

- Analysis of the project's visual setting;
- Identification of key observation points (KOP);
- Descriptions of visual characteristics of the project; and
- Evaluation of impacts to KOPs.

A KOP is a location where people may periodically or regularly visit, reside or work in the general viewshed vicinity of the project's structures or emissions.

In general practice, visual impacts evaluations are conducted within one of three general frameworks, depending upon the relevant jurisdiction and its level of involvement at the project site. These are listed in order of structural formality:

- A formal visual resource or scenery management system, typically in effect only on federal lands, such as the U.S. Forest Service Scenery Management System or the U.S. Bureau of Land Management Visual Resource Management System;
- Locally applicable laws, ordinances, regulations or standards, where imposed by state or local governments; and
- The cultural context, including the influence of previous uses on the landscape and public attitudes toward the compatibility of various types of land use.

[6] California Energy Commission. Energy Facility Licensing Process: Developers Guide of Practices & Procedures (staff report/draft) [online]. Document P700-00-007. November 2000 (revised December 7, 2000). Retrieved July 9, 2002, from http://www.energy.ca.gov/siting/2000-12-07_700-00-007.PDF.

Each framework, in its own way, embodies explicit or implicit consideration of some or all of the standard measures of visual impact: viewer exposure and sensitivity; relative project size, quality, visibility, exposure, contrast and dominance; and prevailing environmental characteristics, such as season and light conditions.[7] Local regulations especially focus on screening of facilities from public view[8] and the effects of glare from outdoor lighting upon adjacent property.[9]

In this instance, the project features under consideration for scenic compatibility are the project structures, any of the project appurtenances, project lighting and the cooling tower plumes. Depending upon the traffic patterns of the coal trucks, limestone trucks and employees, it is also important to examine scenic compatibility associated with changing traffic patterns.

Applicant's Submittal

In compliance with this SAR requirement, the applicant submitted the study findings of a landscape architect contracted to perform a scenic impact study and draw conclusions about visual impact. Mr. John L. Carman (JLC), a landscape architect with Lexington, Kentucky offices, authored the visual impact study. His analysis identified three types of viewpoints within adjacent environments: travelers on KY80, local residents and viewers from "sensitive environments." JLC assumes that if KMP is visible, viewers at these locations would be negatively impacted. Specific observation points chosen were two points on KY80 south of KMP, three points within Robinson Forest WMA to the north, and one point in the Buck Fork Branch residential area southwest of the KMP.

The JLC study points out that the power plant itself will be just over 200 feet in height, placed on top of Potato Knob, a relatively high area in this topographically varied setting. The stack alone will be approximately 450 feet in height, and will represent the most prominent feature from a visual standpoint. The ash disposal area will be within the leasehold, but will be contoured to the land it surrounds. The JLC report emphasizes the surrounding land uses, which consist of an active mining operation surrounded by thick vegetation.

The methodology uses topographic maps to plot "sight line profiles" between the selected viewpoints and the highest elevation of the KMP, the top of the stack at an elevation of approximately 1,850 feet above sea level. If the profile shows there is no topographic obstruction to the line of sight, then KMP could be visible. To be "conservative," the analysis mostly disregards other potential masking features, such as vegetation, prevailing haze or other structures.

The JLC study finds there is no visibility of the future stack possible from the two points on KY80 or from the single point in the Buck Fork Branch residential area. The analysis finds a "marginal obstruction" to the view of KMP from two of the three points in the Robinson Forest WMA.

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[7] See California Energy Commission, op cit.; U.S. Forest Service. Landscape Aesthetics: A Handbook for Scenery Management. Agriculture Handbook Number 701. 1995; U.S Bureau of Land Management. Visual Resource Inventory. BLM Handbook H-8410-1; and U.S. Bureau of Land Management. Visual Resource Contrast Rating. BLM Handbook H-8431-1.

[8] Douglas County (Washington) Code, Chapter 18.80 - Conditional Use.

[9] Georgia Department of Community Affairs. Model Code: Alternatives to Conventional Zoning, Performance Standards for Off-Site Impacts [online]. April 2002.

However, the report cites the forest vegetation, the frequent low visibility atmospheric conditions and the scale of the stack viewed at a distance as minimizing or even eliminating the potential negative visual impact.

Supplemental Investigations, Research and Analysis

The JLC study correctly employs the methodology of identifying key project components that could potentially create visual impact and identifies KOPs to test those impacts. This study also appropriately describes the project setting in terms of the higher elevation for the project situated in the middle of an active coal mine, with residential areas at a lower elevation. The very hilly and very dense vegetation of the region is also properly highlighted as having a major effect on visual impact and scenic compatibility.

BBC found that the scenic evaluation did not address certain issues comprehensively:

- The JLC analysis missed certain project components which could result in visual impact or incompatibility. Additional project components which can create visual impact include the lights on the smokestack (not just the stack itself), plumes from the cooling tower or stack, the pump house and diversion structure for the water system and project-related traffic.

- Visitors to the leasehold during operation, such as those viewing wildlife, employees of the industrial park or golfers are not addressed.

BBC endeavored to examine these issues further. We conducted a site inspection and physical examination of the surrounding area, including the various KOPs. We also interviewed the responsible party at Robison Forest WMA. The results of these further investigations are described below.

Field investigation. BBC extensively traveled the site, the leasehold and surrounding area and determined that the power plant site would not be visible from the Buck Fork Branch community or other businesses and residences along Troublesome Creek or its tributaries. In fact, most human activity is focused in the valleys which block any view of Potato Knob, situated at a higher elevation. Further, the location within the 17,000-acre active Starfire Mine indicates that the project will be buffered from KOPs and further blocked from view by the dense vegetation consisting most of mature, deciduous trees, common to this region. A further buffer is the other coal properties adjacent to the Starfire Mine, i.e., the Lost Mountain mining property.

Stack lighting. The SAR does not address stack lighting, nor is stack lighting mentioned in any of the permit applications reviewed by BBC. Even so, it would be expected that the stack would have light bursts or continuous lights for air traffic safety purposes. The topography and vegetation would block recognition of the stack lights, except from Robinson Forest.

Visible emissions from stack and cooling towers. Air quality studies performed by the applicant indicate that essentially no visible emissions will come from the 450-foot stack.[10]

KMP's air quality permit constrains emissions from each unit to an average of 20 percent opacity.[11] In the final determination on the permit, the Kentucky Division for Air Quality stated that refined CALPUFF modeling showed no adverse impacts to Class I air quality areas.[12]

The air quality permit also addresses drift from cooling towers.[13] These are equipped with "drift eliminators" rated to reduce drift by 99.99 percent. The permit does not address cooling tower plume abatement.[14]

Hence, smoke or plumes do not appear to be an issue in this instance.

Water diversion structure and pump house. BBC visually inspected the location for the water diversion and pump house along the North Fork of the Kentucky River. This location is heavily vegetated with a coal tipple in the vicinity, though not adjacent. Across the river, there is a single home. The diversion structure and pump house are expected to be no more than two stories tall from the landward side, and seven stories at the river. The diversion structure will be developed to minimize its visibility, potentially through the use of decorative block in construction.[15] The structure will likely be visible to the house on the other side of the river during construction and might be visible once it is in operation, although the very thick vegetation in the area is likely to soon mask the pumping structure and much of the diversion.

Visual effects of traffic. Traffic increases along different routes are noted later in this section of this SAR review. As long as the additional traffic is confined to KY80 and KY15, visual impacts will not differ substantially from baseline circumstances. Similarly, traffic on the proposed new bridge and paved road on the coal property will be consistent with coal truck traffic which exists under baseline conditions of approximately 240 to 320 truck trips per day on average along that road in 2002. If truck traffic occurs along the river valleys in Buck Fork Branch or the Troublesome Creek tributaries, such as through the community of Ary, scenic incompatibility issues will result.

Industrial park, golf course and wildlife viewing. The stack, the plant site, the ash landfill and the truck traffic will be clearly visible to those individuals who come the Starfire Mine lands for the purposes of working at the industrial park, golfing at the new course or viewing wildlife. However, these visual effects are also occurring to an extent under baseline conditions of an existing

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[10] Randy Bird and John Tate, personal communication, June 2002

[11] Kentucky Division for Air Quality. Air Quality Permit: Kentucky Mountain Power LLC. Title V/PSD. Permit number V-00-045. Issued May 4, 2001. Available from the applicant. Opacity, or light extinction, is measured by instrument or trained visual observation. Combustion exhaust stack opacity from particulates, or smoke, is measured separate from opacity due to steam plumes.

[12] Don Newell, Supervisor, Combustion Section, Permit Review Branch, Kentucky Division for Air Quality (letter to Harold Sergent, Kentucky Mountain Power LLC, May 4, 2001). Available from the applicant.

[13] Drift is entrained water droplets in the tower discharge airstream. While not a visibility concern, drift is related to public health and safety and plant maintenance issues.

[14] Cooling tower plumes occur when condensed water vapor is present in the discharge airstream.

[15] Rob Nicklaus, US Filter Corporation, personal communication with study team, July 10, 2002.

coal mine. It is possible that this visual impairment, along with other site characteristics, might discourage some businesses or individuals from choosing this industrial park. Use of the leasehold for these purposes is at the discretion, initially, of the applicant and the Starfire Mine, and so can be eliminated if impacts outweigh benefits.

Robinson Forest WMA. BBC interviewed Dr. Don Graves, head of the Department of Forestry at the University of Kentucky in Lexington, regarding Robinson Forest WMA. Dr. Graves is the person primarily responsible for Robinson Forest. He was not aware of any negative environmental effect of the power plant on Robinson Forest. He indicated that if the power plant was visible from the forest, that it would be sufficiently far away and, given the setting of the forest and the surrounding area, that the stack would not be an issue.[16]

Conclusions and Recommendations

The topography and vegetation, coupled with the baseline setting of active coal mining renders the KMP project site, including the stack, compatible with its scenic surroundings in large part. Visual effects from the cooling tower plumes and stack emissions are likely to be negligible based upon information reviewed to date. Scenic compatibility issues will occur if traffic is allowed to migrate off the major highways surrounding the Starfire Mine. Some visual impairment for a house along the North Fork of the Kentucky River may occur, but could be eliminated by keeping the diversion structure and pump house at a low profile and selecting the appropriate color similar to the vegetation in the area. Selecting a color of the stack to best fit with the surrounding view according to typical meteorological conditions would eliminate any modest effects from Robinson Forest or other observation points.

Recommended mitigation. Any remaining scenic compatibility issues can be minimized or eliminated by: (1) selecting appropriate background colors for the stack, the pump house and diversion structure; and (2) keeping construction and operational traffic on the main roads.

[16] Don Graves, personal communication, June 2002.

Potential Changes in Property Values for Adjacent Property Owners

Potential Issues and Standard Assessment Approaches

Development of a new coal-fired power plant can raise issues related to potential changes in property values for nearby property owners. These issues may arise from the widespread perception that a power plant and its ancillary facilities — such as ash disposal landfills, overhead electric transmission lines and electric transformer sites — may be "undesirable land uses" whose impacts are expected to be translated economically into negative effects on property values.[17] Studies also show that impacts may extend for some distance from the site, and possibly beyond the immediately adjacent properties.

Criteria for evaluating property values effects that reflect the concerns of a broad range of interested parties typically include these aspects of the issue:[18]

- Land use compatibility;
- Findings from other empirical studies; and
- Potential for effects to other than adjacent property owners.

Land use compatibility. State and local governments around the country use standards of land use compatibility to minimize the effect of industrial land uses, like power plants, upon nearby properties. SB257 incorporates setback requirements as its primary standard for buffering the siting of merchant power plants. Land use compatibility, in the strict sense of legal use, and in the general sense of reasonably probable use for a given location and "neighborhood," are also factors in a general appraiser's judgment and analysis concerning the "highest and best use" of a property.

Other general issues are also considered to encourage facilities siting in compatible settings where negative effects would be minimal to the uses and values of nearby properties. In Wisconsin, for example, the Public Service Commission publishes this general definition of the range of potentially compatible sites for power plants:

> Typically, active or vacant industrial lands may be more compatible and urban residential lands may be less compatible with power plants. Generally, sites that are more compatible with present and planned land uses are more desirable, as are those where the plant would comply with existing land use regulations.[19]

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[17] Farber, Stephen. Undesirable Facilities and Property Values: A Summary of Empirical Studies. Ecological Economics 24 (1998) 1-14.

[18] See the following document for a summary of criteria developed by the Power Plant Siting Collaborative covered in 1993 by the Public Service Commission of Wisconsin: PSC Overview Series: Common Power Plant Siting Criteria. Retrieved July 5, 2002, from http://psc.wi.gov/consumer/electric/document/brochure/plntsitg.pdf.

[19] Public Service Commission of Wisconsin. PSC Overview Series: Common Power Plant Siting Criteria. Retrieved July 5, 2002, from http://psc.wi.gov/consumer/electric/document/brochure/plntsitg.pdf.

General land use planning practice offers the option to adopt or negotiate for performance standards for outdoor lighting, noise, vibration, odor, smoke or particulate matter, and so forth to minimize off-site impacts to adjacent uses.[20]

Findings from empirical studies. Standard real estate appraisals are the most common type of empirical study used to evaluate potential changes to property values. The appraiser generally relies upon an examination of as many actual sales as possible of comparable properties in similar locations and with similar expectations for highest and best use.

Academic studies published in the land and environmental economics literature have used a variety of property value based analyses to estimate the actual effect of power plants and other "undesirable land uses" whose impacts may have translated economically into negative effects on adjacent property values. So called "undesirable uses: that have been studied in this fashion over time include nuclear and non-nuclear power generation; hazardous, toxic and nuclear waste disposal; conventional solid waste disposal; waste incineration; and hazardous industrial facilities.[21]

An example is a study of 262 undesirable or "noxious" facilities across the country, including 39 coal-fired power plants (of which 2 were in the East South Central region that includes Kentucky) illustrates this effect. Coal-fired power plants were found to significantly decrease property values and increase wages in the communities where they are located, with the combined implicit effect being negative.[22] The literature also includes numerous studies of the effect of electric transmission lines upon property values.[23]

Potential for more distant off-site effects. Most analyses of unwanted facilities are local in scope. However, the effect of such facilities has been shown to extend well beyond the site.[24] This has been shown in at least one study, where negative effects of a small power plant located within the city of Winnetka, Illinois, were significant out to a distance of 11,500 feet, or more than two miles.[25]

Information Provided in the Applicant's SAR

The applicant provides property value-related information in several places in the Application and in the SAR. In application Section 3, Local Planning and Zoning, the applicant states that Knott County does not have any planning-zoning regulations in place. In Section 8.2, Description of the Facility, the applicant states that it has a lease for 4,000 acres for construction of the KMP, as well as the industrial park and golf course.

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[20] Georgia Department of Community Affairs. Model Code: Alternatives to Conventional Zoning. Retrieved July 5, 2002, from http://www.dca.state.ga.us/planning/ModelCode/3-1PerformanceStandards.pdf.

[21] Farber, Stephen. Op cit.

[22] Clark, David E. and Leslie A. Nieves. An Interregional Hedonic Analysis of Noxious Facility Impact on Local Wages and Property Values. Journal of Environmental Economics and Management 27 (1994) 235-253.

[23] Hamilton, Stanley W. and Gregory M. Schwann. Do High Voltage Transmission Lines Affect Property Value? Land Economics 71 (1995) 436-44.

[24] Clark and Nieves. Op cit.

[25] Blomquist, Glenn. The Effect of Electric Utility Power Plant Location on Area Property Value. Land Economics 50 (1974) 97-100.

In Section 8.5, the applicant presents the opinion of Martha Greer, general appraiser of Martha Greer Realty (MGR), Hazard, on the value of the Spruce Mine Tract, the four parcels that would contain the proposed industrial park and golf course. These are nearby, though not contiguous to, the 195-acre site of the KMP proper.

MGR describes the Spruce Mine Tract as being in a rural residential area, other than the existing mining operation, that includes properties near KY 80 that are being developed for retail and commercial uses. MGR also reports that the Spruce Mine Tract is not zoned and states that there are no known deed restrictions, existing land use regulations or ordinances that would have any effect on the use of the property.

A second property value analysis is included within the Response to Filing Deficiency materials; the author of the second analysis is not identified. The second analysis discusses effects to the remainder of the nearly 4,000-acre leasehold that contains the KMP, industrial park and golf course sites.

MGR uses the sales comparison approach to arrive at a standard real estate appraisal of the "as is" and "subject to – site improved" value for the parcels. This involves assembling comparable sales in similar circumstances, calculating per acre sales prices and adjusted and averaging the sales data to arrive at a per-acre value consistent with the appraiser's experience and judgment.

In the Response to Deficiencies materials, the applicant indicates that KMP will control the 3,800 acres surrounding the 195-acre plant site for at least the next 99 years. Therefore, no opinion is offered as to the impact on its value. No other properties are identified in the area that may be under different ownership.

The MGR appraisal assigns an "as is" value of $575,000 to Spruce Mine Tract and a value of $7.3 million that is contingent upon the proposed improvements: a water system, limited access three-lane road and new bridge into the property.

The applicant's evaluation of the remaining acreage (i.e., the 4,000 acres under lease, less acres devoted to the KMP, industrial park and golf course) is that the owner, Appalachian Realty Company (ARC), would be unable to realize any increase in value during the current lease that the land may experience due to improvements incidental to the KMP. According to the applicant, the current 99-year lease extends through 2098, and KMP has an option for a 99-year renewal.

In Section 8.3.7, the discussion of applicable setbacks, the applicant indicates that the nearest residential neighbor is about 13,000 feet from the plant site. The application and the SAR include no further specific information as to the total number of residential properties situated within a similar distance of the plant site.

Based upon these findings, the applicant does not propose any mitigation for effects to nearby property values.

Supplemental Investigations, Research and Analysis

After reviewing the SAR, the BBC team sought to supplement the information provided in that report where necessary to more fully address the potential issues described at the outset of this section. In a siting assessment, the focus of an evaluation of potential impacts on property values should be on properties outside the project under the ownership of parties who are not direct participants in the project. The SAR, on the other hand, focused its analysis of property values on the industrial park and golf course sites, which are integral parts of the proposed project. In the Response to Filing Deficiencies, the focus was on the properties adjacent to the actual power plant site which are also leased by KMP.

To remedy these deficiencies, the study team conducted interviews and additional data collection with the applicants, the Knott County Judge Executive, the Knott County Property Value Assessor (PVA), other local officials in Hazard and Perry County and the postmaster in the office nearest the plant site. The BBC team also spent time visiting the areas of private properties in closest proximity to the proposed site.

Proximate land uses and topographical buffers. As noted in the SAR, the nearest residential development is located more than two miles from the proposed plant site. The assessment did not indicate, however, the number of homes and businesses that are located in similar proximity. An informal visual survey from the roads closest to the edge of the Starfire Mine property indicated there were a substantial number of homes, and a few small businesses, located in the same general area as the closest home to the property. A telephone interview with the postmaster at Ary (the closest post office to the plant) indicated that the local route included 250 deliveries.[26] Probably 90 percent of these mailboxes are residences. In general, these developments are located south and southwest of the plant site.

In the interviews with local officials that the study team conducted, most individuals anticipated generally beneficial effects on property values throughout the region arising from the increased level of economic activity associated with the proposed power plant (and the associated industrial park). At least one interviewee did suggest there might be some negative impact on the value of the closest properties, but that this would likely be offset by property value gains elsewhere in the area.[27]

As noted at the outset of this section, some previous studies have found power plants to have detrimental impacts on property values at distances of up to two miles. In this case, the nearest homes are more than two, but less than three, miles from the proposed plant site. More importantly, however, the topography of the area would appear to serve as a substantial buffer to potential impacts on property values. The plant site is located in the midst of a large (17,000 acres) and relatively flat area of reclaimed mine land. The nearest homes and businesses (apart from surface coal mines), however, are located in the valleys below the mountain top coal mine. These valleys are characterized by steep and narrow sides and dense vegetation. As such, the presence of a power plant within two to

[26] Randy Bird and the Ary Postmaster, personal communication, June 26, 2002.

[27] Judge Executive, Knott County; Judge Executive, Perry County; Mayor, City of Hazard; and Property Value Assessor, Knott County, personal communication, June 26, 2002.

three miles of some of these properties should be virtually undetectable. A possible exception to this topographic buffer could occur if the proposed new access route between the plant and KY 80 were not constructed or substantial power plant related traffic used the same roads servicing the nearby developments.

Conclusions and Recommendations

Based upon review of the applicant's SAR, subsequent conversations with the applicant and additional data collected by the BBC team, we reach the following conclusions concerning the potential changes in property values for adjacent property owners:

- The proposed plant site is located in the midst of a large surface coal mine containing 17,000 acres. Much of the land adjoining this mine is also permitted for surface coal mining. There are no planning and zoning regulations in place on or near the proposed site.

- The nearest residential and commercial developments (excluding coal mines) are located more than two, but less than three miles from the proposed plant site. This distance is slightly greater than the range of potential impacts to property values found in previous studies of the effects of power plants on property values.

- Most importantly, the topography of the area is such that the power plant should be virtually undetectable from any of the nearby properties. An exception to this topographic buffer could occur if the proposed new access road from KY 80 to the site were not completed and power plant (and industrial park) traffic relied on existing roads which front the nearby developments.

- Positive property value effects will occur on the industrial park and golf course tracts once they are developed.

- Opinions of community leaders are that impacts to property values in the region will generally be positive. BBC believes this will be true if the construction and operations workforce is drawn from the local, three-county area of Knott, Perry or Breathitt.

Recommended mitigation. The SAR does not specify any particular mitigation measures related to impacts on adjacent or nearby property values. As suggested in interviews with community leaders, it is possible that the net effects on regional property values could be positive, with gains due to the additional economic stimulus created by plant construction and operation outweighing any possible localized reductions in value in closest proximity to the plant site. In this vein, the BBC team recommends that impacts on regional property values be mitigated by KMP implementing efforts to hire locally to the maximum extent possible. As indicated in the discussion of potential traffic impacts, we also reiterate that construction of the new access road (as planned) is a vital component to mitigating traffic impacts and associated potential impacts on property values along existing routes such as KY 1087.

Expected Noise from Construction and Operation

This section evaluates the SAR studies and conclusions concerning peak and average noise levels associated with KMP's construction and operation. This component of the SAR is identified in Section 5 of KRS Chapter 278, Subsection (d).

Standard Methodology and Issues for Noise Studies

Various government agencies throughout the country employ noise assessment methodologies based on professionally accepted techniques. In evaluating the construction and operations stages of a project, these techniques are fundamentally consistent from application to application in that they seek to estimate the potential contribution to ambient noise levels at the site in terms of sensitive receptors. Generally, the assessment methodologies are meant to measure the increase in noise levels over the ambient conditions at residential and non-residential sensitive receptors.

A standard noise impact assessment focuses on several key factors:

- Identification of sensitive receptor sites;
- Existing local ambient noise levels;
- Estimated construction or operational noise intensities;
- Distances between noise sources and sensitive receptors;
- Noise created by transportation features such as conveyors, trucks and rail lines; and
- Calculation of the cumulative effect of the new noise sources when combined with the existing ambient noise level, recognizing that new noise sources contribute to the ambient noise level, but not in an additive way.

In jurisdictions where there are no legal thresholds of impact, the determination of the significance of ambient noise impacts must rely on measures of compatibility and acceptability that are drawn from theory, from research or standards enacted elsewhere, or from a subjective assessment of community preferences, based on any available indicators.[28] In Kentucky, the coal mining industry may provide relevant indicators of general public preferences about noise impacts. For example, by far the largest share of complaints about coal mining activity (42 percent) are attributed to blasting noise.[29]

In the instance of the KMP project, noise issues stem from the construction activities, the "steam blows" which occur at plant startup, and noise from the boiler feed pumps. Noise from the water diversion pump house along the North Fork of the Kentucky River deserves examination as well, along with truck traffic.

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[28] See for example U.S. Department of Housing and Urban Development. The Noise Guidebook. No date, Figure 3, Land Use Compatibility Guidelines. (Available from the U.S. Government Printing Office.)

[29] 2000-2001 State of Kentucky's Environment: A Report on Environmental Trends and Conditions [online]. Published by The Kentucky Environmental Quality Commission, June 2001, p. 147.

Applicant's Submittal

In compliance with this SAR requirement, the applicant submitted the studies of Mr. John L. Keller of Air, Soil and Water Environmental Consulting and Testing Laboratories (ASW) from Lexington, Kentucky. Mr. Keller prepared a noise evaluation for KMP, and the applicant submitted a second noise evaluation with its Response to Filing Deficiencies, although the author is not identified. In addition, the applicant offered limited supplemental information related to noise impacts in response to PSC staff's first data request in a response dated July 1, 2002.

Methodology. ASW's evaluation addresses the issue of noise impacts of the proposed KMP project and a single-family residence located 2.5 miles from the proposed stack of the KMP. The consultant's basic methodology is to consider the noise emitted by each item of power plant equipment. The methodology then uses standard formulas to calculate each source's contribution to ambient noise at a range of distances away from the source.

The ASW evaluation uses a proxy analysis. The sources of noise and their impacts were drawn from an analysis of a power plant in Burbank, California. The rationale for this is that the KMP will use a similar array and type of equipment as the Burbank plant.

The second noise evaluation, submitted with the Response to Filing Deficiencies, considers both operations and construction. The methodology is similar to the earlier ASW analysis. For construction, typical noise levels for selected construction activities are taken from a publication of the Environmental Protection Agency (EPA). For operations, the typical sources and noise levels are taken from the ASW report, with minor changes. The typical noise levels are then extrapolated to three distances from the source: the property boundary (555 feet), the project lease line (2,048 feet) and the nearest residence (13,600 feet). The resulting sound levels are then compared to a table of reference sound levels. The table is presented without attribution, but is similar to tables found in reference works on environmental noise.[30]

Findings. ASW's analysis concludes with the finding that the residential property located approximately 2.5 miles from the KMP will not be adversely impacted by noise. The noise evaluation from the Response to Filing Deficiencies makes the following findings:

- During construction, the maximum expected noise level at the nearest residential neighbor to the project will be approximately 40 dBA (equivalent to a quiet home);
- The "steam blows" that will occur several times a day for a few days before initial plant start up (likened in noise level to mine blasting) will create a maximum noise level of 87 dBA at the nearest residence if unattenuated (equivalent to a heavy truck at 50 feet) and of 57 dBA if silencers are used (equivalent to a large air conditioning unit at 20 feet);
- During operations, the loudest noise level at the nearest residence will be 39 dBA from the boiler feed pumps, assuming no attenuation within the plant (equivalent to a quiet home).

[30] See for example U.S. Department of Housing and Urban Development. Op cit, Figure 1, Common Sounds Basic Theory: Common Sounds in Decibels (dB).

In response to the staff's first data request regarding background noise, the applicant stated that they have not done any background noise studies at the facility's site, but that they anticipated that it would be negligible on site, except for the periodic mine blasting noise which reaches 128 dBA.

Mitigations. Based on the findings, the applicant does not commit to any direct mitigation. However, as noted above, the SAR mentions several mitigations that could be part of KMP:

- Use of silencers during steam blows; and
- Enclosure of boiler feed pumps.

Supplemental Investigations, Research and Analysis

The ASW study appropriately recognizes that there are sources of noise from the construction and operation of the plant, and that there are receptors for that noise at the property boundary, the lease line and even outside the lease at the nearest residence. By recognizing the noise levels at the nearest residence, the applicant properly opens up the possibility of noise from other sources, such as the coal and limestone trucks and employee traffic. The applicant's use of proxy analysis for a power plant in California is appropriate, as long as the applicant concurs that the KMP project will have similar equipment to the Burbank, California power plant. Similarly, the use of EPA noise levels for selected construction activities is also appropriate, presuming that the applicant agrees to be generally within the bounds of those particular construction activities.

BBC finds that the ASW study does not comprehensively address other relevant noise issues:

- The lack of an ambient, background noise level measurement at the facility site and at the receptor locations means that there is an incomplete picture of the noise impacts of the project. Perceptions of noise by the receptor during construction and operation will inevitably be the cumulative effect of baseline conditions with the effects of construction or operation superimposed.
- Noise generated from the pumps at the water diversion location along the North Fork of the Kentucky River was not addressed.
- Noise from coal truck, limestone trucks and employee vehicles affecting residential areas was not addressed.
- Noise impacting visitors to the leasehold during operation, such as those viewing wildlife, employees of the industrial park or golfers were also not addressed.

BBC attempted to address these shortcomings through additional investigation, research and analysis. We conducted a site inspection and physical examination of the area, including key receptor locations. We also gathered additional information through interviews with the applicant during our site visit.

Field investigation. BBC extensively traveled the project site and surrounding area and determined that noise from the plant itself would likely be reduced considerably as a result of the natural topography and vegetation in and around the plant property itself. Most human activity is

focused in the valleys, as compared with the plant location on Potato Knob at a higher elevation. The 17,000-acre Starfire Mine will further buffer the project from noise receptors. Finally, the vegetation common to this region will act as a buffer as well.

The ambient or background noise was personally experienced during the course of a day at the plant site. Background noise on Potato Knob consists almost entirely of that common to a rural and unpopulated area. Near the plant site itself, the sound of coal trucks and other heavy equipment is evident. The drill-shot blasts from the coal mine were not heard during the field visit. Although the lack of a specific ambient or background noise analysis is a missing component of the SAR, the field inspection would indicate that noise from the plant site itself is unlikely to be substantial, except for the initial steam blows.

Water pumping. BBC visually inspected the location for the water pumps near the North Fork of the Kentucky River. The location is heavily vegetated, and largely uninhabited, except for a single house across the river. No studies have been performed about the noise associated with the pumps, although the applicant expressed that the motors would not be loud enough to disturb anyone.[31] Further discussions with U.S. Filter Corp. indicated that that company intends to meet industry standards for noise suppression, including internal noise baffles, in developing the intake structure. U.S. Filter Corp. indicated that though noise will be audible outside the building, it will be less than the noise level currently produced by truck and rail traffic at the same location.[32] Thick vegetation in the vicinity should also help baffle the noise, although noise might carry over the water, depending upon the exact location of the pumps and the pump house.

Noise effects of traffic. Traffic increases along routes are noted in later in this section. Although increased traffic will inevitably add to noise effects, these effects should not be substantial beyond baseline conditions if traffic is confined to KY 80 and KY 15. Similarly, noise from the trucks and employees on the new bridge and paved road on the coal property will be consistent with the noise emanating from coal and employee traffic now. If truck traffic occurs along the river valleys, along Buck Fork Branch or the Troublesome Creek tributaries, such as through the community of Ary, noise impacts from this traffic will likely be significant.

Industrial park, golf course and wildlife visitors. Visitors to the Starfire Mine property to view wildlife, to play golf or to work in the new industrial park will certainly hear the increased traffic and the initial steam blows. A lower level of noise is already occurring under baseline conditions of the coal mine, however. Noise from the site could discourage some businesses or individuals from choosing to visit the area for these purposes. Regardless, use of the leasehold lands for the purposes of the industrial park, the golf course and wildlife viewing is at the discretion, initially, of the applicant and the Starfire Mine, and so can be eliminated if impacts outweigh benefits.

Conclusions and Recommendations

The topography and vegetation, coupled with the baseline setting of an active coal mine, will serve to substantially reduce noise impacts from the project site itself, with the exception of the initial steam blows. Noise impacts from the pumps at the water diversion structure are uncertain, but are unlikely

[31] Randy Bird and John Tate, personal communication, June 2002.

[32] Rob Nicklaus, US Filter Corporation, personal communication, July 10, 2002.

to be considerable. Some negative impacts to the house across the river might be evident. Noise from the traffic will not be substantially negative compared to baseline conditions, if the coal and limestone trucks and employees remain by and large on KY 80 or KY 15.

Recommended mitigation. As noted in the applicant's SAR, the use of silencers during the initial steam blows and enclosure of boiler feed pumps are recommended mitigation steps. In addition, BBC recommends that noise baffling or other noise abatement devices be utilized for the water pumps and that traffic be confined to KY 80 and KY 15 to the maximum extent possible.

Impacts on Land-based Transportation

This portion of the SAR review examines the KMP impacts on roads and rail. This relates to traffic effects, such as congestion, safety, degradation of the roads or rail and fugitive dust.

Potential Issues and Standard Assessment Approaches

Development of a new coal-fired power plant can raise a variety of potential traffic related issues. These issues may arise from the movement of heavy and oversize loads during the construction process and added congestion during both construction and subsequent operations.

Standard components of the evaluation of traffic related impacts include:

1. Identification of access methods, description and visual portrayal of primary access routes to the site during construction and during operation.

2. Description of baseline traffic conditions: existing traffic counts, road capacity and level of service and any major existing constraints (e.g., bridge weight limitations, etc.).

3. Identification of any special transportation requirements during construction (e.g., the need to reinforce or "ramp over" existing bridges, detours, temporary closures, etc.).

4. Projection of traffic volumes related to construction and operation.

5. Determination of whether the additional traffic, during construction and operation, will lead to congestion, changes in the level of service of the existing road network or additional road maintenance costs.

Information Provided in the Applicant's SAR

The applicant's SAR provides traffic impact-related information in several places. A two-page, Traffic Evaluation report is provided by Brighton Engineering Company, summarizing analyses conducted by that company on behalf of KMP.[33] Additional relevant information is provided in the Description of the Facility, in the Economic Analysis and in the Site Assessment for the Elk Run Golf Course performed by John L. Carman and Associates.[34]

The following summarizes the most relevant information provided in the SAR.

Access methods and routes to and from the site during construction and operation. All fuel transported to the plant will be moved by truck; no rail service will be utilized. KY 80 is the major route providing access to the site from the east and west. Access to the site during the first year of construction will be via KY 1087 and an existing, unpaved coal haul road. Access to the site after

[33] See EnviroPower, SAR, May 31, 2002, Section 8.7.

[34] Ibid, Section 8.2 and Section 6.

the first year of construction will be via a new, paved access road being developed as a cooperative effort between KMP, Knott County and the State of Kentucky.[35] No maps specifically portraying primary traffic routes were provided.

Baseline traffic conditions. KY 80 is a four-lane, divided highway, Resource Recovery Road with heavy-duty pavement. Current traffic counts along KY 80 in the vicinity of the project area are indicated at nearly 6,800 vehicles per day. The American Association of State Highway and Transportation Officials (AASHTO) guidelines for a roadway of this type suggest a daily capacity of approximately 144,000 vehicles. Current traffic counts along the two-lane, KY 1087 from KY 80 to areas proximate to the proposed KMP site are indicated at approximately 680 vehicles per day, primarily or entirely associated with existing operations of the Starfire Mine. No information is provided concerning capacity along this route.[36]

Special transportation requirements during construction. Information about special transportation requirements during construction is not provided beyond the statement that for access roads from KY 80 to the site, "No conflicts or impact to traffic is anticipated due to anticipated offsets in peak times of arrival associated with the existing mining activity and the proposed construction activity."[37]

Projection of traffic volumes related to construction and operation. The Brighton Engineering Report indicates projected construction traffic of 420 vehicles per day during the first year of construction. No projected volume is provided for subsequent construction years. This report also indicates that traffic volumes associated with the plant during operation will be an estimated 736 vehicles per day, including 71 percent (or 522 vehicles) being trucks hauling fuel and limestone to the plant, and the remainder being employees and vendors associated with the plant. Traffic requirements for the associated industrial park and golf course are not described in the Brighton Engineering Report.[38]

Elsewhere in the SAR, additional (and sometimes inconsistent) information is provided. In the golf course site assessment, it is indicated that 1,200 trucks per day will be involved in bringing fuel and other material to and from the plant.[39] The economic analysis provides information on fuel volumes (which imply corresponding transportation requirements), indicating that 1 million tons of waste fuel per year will be trucked to the plant from various Eastern Kentucky mine sites, and 3 million tons of

[35] Brighton Engineering Company, May 20, 2002, pages 1 and 2.

[36] Ibid, page 1.

[37] Ibid.

[38] Ibid, pages 1 and 2.

[39] John L. Carman and Associates, November 27, 2001, page 7.

run-of-mine fuel will be brought to the plant, primarily from locations adjacent to or very near the plant location. An estimated 500,000 tons per year of limestone will be trucked to the site from either the Somerset area or the Pine Mountain area.[40] Finally, the "Description of the Facility" indicates that fuel delivery will occur primarily during daylight hours.[41]

Determination of transportation impacts from construction and operation. As indicated earlier, the SAR implies that the combination of baseline traffic volumes and additional volumes during the first year of construction and during operational years will result in traffic volumes substantially below the existing capacity of KY 80. The report also states that there will be no conflict along existing access roads (primarily KY 1087) between plant construction traffic and existing mine operation traffic. No further information is provided concerning any impacts from congestion or any potential changes in the level of service along the access routes to and from the plant.

The SAR indicates that in the first year of construction, prior to completion of the new access road, there will be no impact on fugitive dust emission levels or control costs from the use of existing, unpaved mine access roads because the mine's dust suppression operations will be unaffected by additional traffic.[42]

Supplemental Investigations, Research and Analysis

After reviewing the SAR, the BBC team sought to supplement the information provided in that report where necessary to more fully address the potential issues described at the outset of this section, describe the potential effects of operation and construction on traffic conditions in the area and to resolve apparent inconsistencies. In particular, the SAR was deficient in not providing a map specifically focusing on access routes to and from the site, not fully describing baseline traffic conditions on the array of road segments that may be used for both material and worker transportation during construction and operation, in not examining the amount of traffic involved at the peak period of construction and in not discussing the potential for road closures or other traffic disruptions during movement of large components as part of the construction process.

Interviews and additional data collection were conducted with the applicant, the Kentucky Transportation Cabinet and management of the Starfire Mine.

Site access during construction and operation. During construction, KY 80 will be the primary access route to the site vicinity for the movement of materials and labor to the site. For the largest and heaviest plant components, road travel along KY 80 will be minimized because these components are likely to be shipped by rail to the siding near Typo (approximately ten miles west of the site on KY 80).[43]

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[40] Economic Analysis, page 1.

[41] Description of Facility, page 2.

[42] Brighton Engineering Company, May 20, 2002, pages 1 and 2.

[43] John Tate and Randy Bird, KMP, personal communications with study team, June 25 and 26, 2002.

During operations, the route and extent of fuel and limestone supply traffic to and from the site will depend on which suppliers ultimately enter into contracts with KMP. At this point, most of the fuel supply and all of the limestone supply arrangements have not been fully negotiated. The applicant was able to provide BBC with the general locations of potential sources of supply for both fuel and limestone.[44]

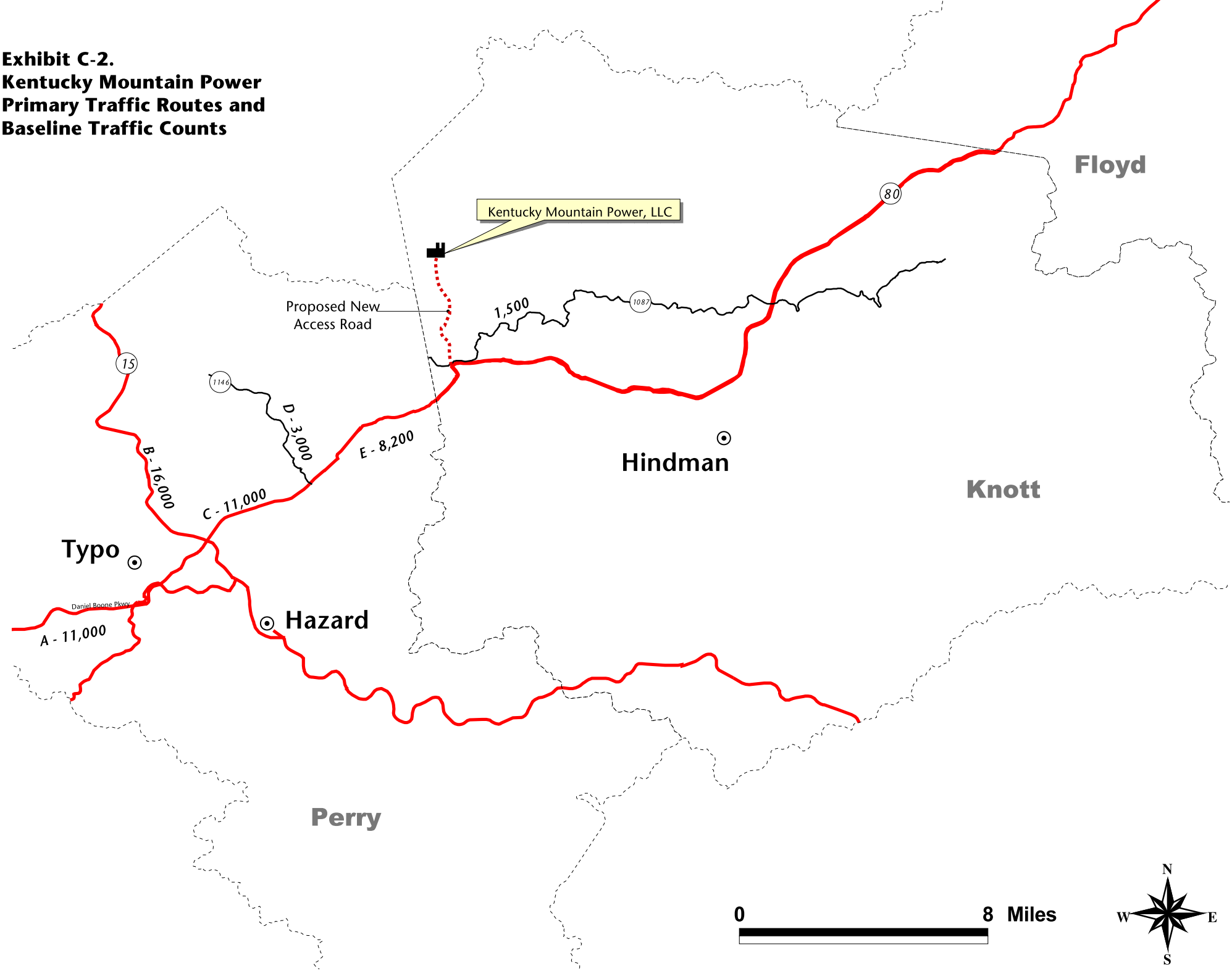
Depending on the outcome of fuel supply negotiations, a large portion of the supply could be drawn from the Starfire Mine which surrounds the plant site. These fuel supplies would move to the plant entirely over internal access roads within the 17,000 acres controlled by Starfire, minimizing any traffic impacts on public roads such as KY 80. If negotiations with Starfire are unsuccessful, however, fuel will be obtained and shipped from a number of other mines and mine sites within about a 15- to 20-mile radius of the site. Limestone is most likely to be obtained from either sites west of the plant site along KY 80 or, potentially, also north of the plant site using KY 15 for access. It is anticipated that much of the transportation arrangements for hauling limestone will be via "backhaul" agreements, in which trucks hauling coal from the vicinity of the plant site to areas near limestone quarries will haul limestone back to the plant on their return trips.[45]

Exhibit C-2, on the following page, depicts the primary transportation routes for fuel and limestone in the vicinity of the proposed plant site. For purposes of assessing the range of potential transportation impacts later in this section of the report, the BBC team has developed two scenarios. The first scenario assumes that most of the fuel required by the plant will be procured from the Starfire Mine, with the exception of waste fuel sources already under contract. The second scenario assumes the worst case, from the standpoint of potential transportation impacts, that no fuel is obtained from the Starfire Mine. These subsequent impact assessments examine baseline traffic conditions and projected increases in traffic along key segments of the road system proximate to the proposed site and labeled A through E on Exhibit C-2.

[44] John Tate and Randy Bird, KMP, personal communications with study team, June 25 and 26, 2002.

[45] Ibid.

Exhibit C-2.
Kentucky Mountain Power
Primary Traffic Routes and
Baseline Traffic Counts



Baseline traffic conditions. To supplement the baseline traffic information provided in the SAR, the BBC team gathered additional information from the Kentucky Transportation Cabinet, downloaded traffic count data from the Kentucky Transportation Cabinet's website and interviewed the management of the Starfire Mine.

Exhibit C-2 depicts the most recent daily traffic counts on the primary access routes to and from the plant site. Traffic along KY 80 ranges from about 8,200 vehicles per day in the segment containing the future access route to the plant site upward to nearly 11,000 vehicles per day in the segments east and west of the interchange with KY 15. Traffic along the segment of KY 15 immediately north of the interchange with KY 80 averages as much as 16,000 vehicles per day.[46]

Within the lands controlled by the Starfire Mine (including lands leased or sold to EnviroPower), traffic consists primarily of trucks carrying coal off-site to shipping points and customers and the movement of employees to and from the mine. The former ranges from 120 to 160 loads per day, or 240 to 320 trucks per day counting both ingress and egress from the mine.[47] The mine's 155 employees likely account for approximately another 300 or more trips per day (counting both ingress and egress).

Special transportation requirements during construction. KMP anticipates that traffic disruption during construction due to the movement of heavy and oversize plant components will not be extensive. Only four oversize loads are anticipated that will require special handling equipment, and none of these loads are larger than a typical one-half doublewide mobile home. No road closures are anticipated to accommodate movement of these loads.[48]

KMP also indicated that the State may decide it is necessary to "ramp over," or reinforce, one bridge along KY 80 to facilitate movement of the heaviest components. This bridge crosses Troublesome Creek, just southwest of the plant site.[49]

Projection of traffic volumes related to construction and operation. The precise locations of additional traffic volumes related to construction are difficult to fully anticipate at this time. The major components of the plant are likely to primarily move from the rail siding near Typo to the vicinity of the plant on eastbound KY 80. Construction employees, however, may be drawn from locations in all directions from the plant. KMP management anticipates most employees will come from within a two-hour radius around the plant site, with most either living in the local area or commuting from their existing homes. Other communities within this radius would include Ashland, London, Somerset, Corbin, etc.[50]

[46] Data provided by Chad LaRue, Transportation Engineer, Kentucky Transportation Cabinet, June 28, 2002.

[47] Greg Feltner and Brian Patton, Starfire Mine, Personal communication, June 26, 2002.

[48] KMP Response to Board Staff's First Data Request, July 1, 2002.

[49] John Tate and Randy Bird, KMP, Personal communication, June 26, 2002.

[50] Ibid.

Data provided by EnviroPower to the Kentucky Transportation Cabinet regarding anticipated traffic volumes for the new bridge and access road to the plant from KY 80 indicate anticipated traffic of 300 trips per day for construction employees, as well as 120 trips per day for construction vendors.[51] The employee traffic volume, however, appears to be understated relative to the anticipated peak workforce of as many as 800 construction employees during the middle portions of the construction effort.

To examine the potential "worst case" from a traffic standpoint, the BBC team assumed that each of construction employees would drive alone to the plant site and that all would use the same route (eastbound KY 80) as the plant equipment being brought to the site. Exhibit C-3, below, depicts anticipated average and peak construction traffic volumes along key segments of KY 80, using the worst case assumptions described above, as well as the other data provided by EnviroPower to the Kentucky Transportation Cabinet.[52] In this data, EnviroPower included a projected 1,000 trips per day for activity related to the industrial park. This estimate represents the largest component of the anticipated traffic associated with construction of the plant and the related facilities and also appears the most uncertain. The timing and nature of development activities at the industrial park will obviously depend on the success of local economic development efforts in attracting businesses to the area.

Exhibit C-3.
"Worst Case" Estimate of Potential Traffic Increase During Plant Construction

		Impact of Plant and Associated Facilities on Traffic per Day				
Road and Segment	*Baseline Traffic per Day*	*Construction Employees*	*Construction Vendors*	*Industrial Park*	*Total*	*Percent Increase*
Average Construction Activity						
C. KY 80 (From KY 15 to KY 1146)	11,000	400	120	1,000	1,520	14%
E. KY 80 (East of KY 1146 to Plant Site)	8,200	400	120	1,000	1,520	19%
Peak Construction Activity						
C. KY 80 (From KY 15 to KY 1146)	11,000	800	120	1,000	1,920	17%
E. KY 80 (East of KY 1146 to Plant Site)	8,200	800	120	1,000	1,920	23%

*Other vehicles include primarily at the plant and industrial park and visitors to the golf course.

As indicated earlier in this section, the volume and location of traffic associated with operation of the plant will be heavily influenced by the fuel supply contracts and arrangements to be agreed upon between KMP and nearby coal mines. To again consider the worst case, the BBC team modeled a scenario in which no fuel is obtained from the Starfire Mine. Exhibit C-4, below, depicts traffic volumes associated with this scenario. Once again, the largest component of additional traffic during operation is associated with the industrial park, and that component should be considered highly uncertain.

[51] New Access Bridge from KY 80 Volume of Traffic per Year, Information provided by EnviroPower to the Kentucky Transportation Cabinet, June 22, 2001.

[52] BBC estimates and New Access Bridge from KY 80 Volume of Traffic per Year, Information provided by EnviroPower to the Kentucky Transportation Cabinet, June 22, 2001.

Exhibit C-4.
"Worst Case" Estimate of Potential Traffic Increase During Plant Operations

Road and Segment	Baseline Traffic per Day	Impact of Plant and Associated Facilities on Traffic per Day: Trucks Fuel/Limestone	Other Vehicles: Plant	Other Vehicles: Other*	Total	Percent Increase
A. KY 80 (West of KY 15 interchange)	11,000	0 to 65	0	0	0 to 65	0% to 1%
B. KY 15 (North of KY 80 interchange)	16,000	30 to 540	0	0	30 to 540	0% to 3%
C. KY 80 (From KY 15 to KY 1146)	11,000	95 to 540	200	1,200	1,495 to 1,940	14% to 18%
D. KY 1146 (North of KY 80)	3,000	40 to 40	0	0	40 to 40	1% to 1%
E. KY 80 (East of KY 1146 to Plant Site)	8,200	135 to 580	200	1,200	1,535 to 1,980	19% to 24%

*Other vehicles include primarily at the plant and industrial park and visitors to the golf course.

Effects of additional traffic from construction and operation. As noted above, under worst case assumptions, there could be an increase of between 17 percent and 23 percent in daily traffic along KY 80 near the plant site during the peak phase of construction and an increase of between 18 and 24 percent along the same road segments during operation. A large part of this projected traffic increase is associated with highly uncertain estimates of the workforces involved in constructing and operating facilities at the associated industrial park.

Although heavy truck traffic comprises substantially less than one-half of the projected increase in traffic volumes during construction and operation, the volume of trucks involved in delivering fuel and limestone to the plant could represent a significant increase in this type of traffic along KY 80. If the worst case assumptions are borne out and the plant has to import all of its fuel, rather than obtaining fuel from the Starfire Mine surrounding the leasehold, the estimated 580 trucks per day moving fuel and limestone in and out of the plant would be equivalent to approximately twice the existing truck traffic associated with the mine.

The worst case traffic assumptions associated with construction and operations should be compared with information on the capacity and level of service for the key road segments. The Kentucky Transportation Cabinet was unable to locate any existing level of service analysis for the key segments of KY 80 and KY 1087 within the timeframe of this review. In the analysis performed for the applicant by Brighton Engineering, however, it was estimated that the capacity of KY 80 may be as high as 144,000 vehicles per day.[53] Presuming this is a reasonably accurate estimate, the combination of baseline traffic and additional traffic associated with the project will remain far below the capacity of KY 80. Though the capacity and level of service on KY 1087 are also uncertain, construction traffic on KY 1087, prior to completion of the new access road from KY 80, has the potential to roughly double the total amount of traffic on this road.

[53] Brighton Engineering Company, May 20, 2002, pages 1 and 2.

During the first year of construction, prior to completion of the access road, vehicles accessing the plant site will use unpaved mine roads. The BBC team confirmed, through interviews with mine management, that no additional dust suppression is expected to be required in light of this additional traffic.[54]

The primary impact in terms of the costs of road maintenance will come from the need to maintain the new access road to be built to the site from KY 80. It is anticipated that this access route will be designated a county road and either Knott County or the State of Kentucky will be responsible for maintenance, but the details of maintenance responsibility and funding are still being discussed between those two entities.[55]

Conclusions and Recommendations

Based upon the applicant's SAR and the additional research conducted by the BBC study team, we have reached the following conclusions concerning transportation related impacts of developing the KMP project.

- During construction, there is likely to be minimal disruption to the flow of traffic along KY 80 (and potentially along KY 1087) from the movement of oversize and heavy plant components. Disruptions will be limited by the use of rail to bring components to the siding at Typo.

- Construction activity may generate an additional 1,500 trips per day on average. At the peak of construction, as many as 1,900 additional trips per day may take place. This activity might increase traffic on KY 80 west of KY 1146 by about 14 percent on average and 17 percent at peak. East of KY 1146, traffic on KY 80 would increase by about 19 percent on average and 23 percent at peak. These projected increases in the volume of traffic along KY 80 would result in traffic volumes that remain substantially below the estimated capacity of that road. During the first year of construction, prior to completion of the new access road from KY 80 to the site, traffic will use KY 1087 and substantially increase the number of vehicles using that road.

  Finally, it should be noted that more than one-half of the projected vehicle trips during construction are associated with the assumed simultaneous development of the industrial park. This activity level at the industrial park is unlikely, pending more concrete plans and agreements with potential tenants of that facility.

- Impacts on traffic during operations will depend, in part, on the ultimate fuel supply arrangements reached between KMP and local coal mines. The range of potential increases in traffic along KY 80 is between about 1,500 and 2,000 additional trips per day, corresponding to a 14 to 24 percent increase over current daily traffic loads in the vicinity of the plant. As with the projected increases in traffic during construction, these additional trips will not result in cumulative traffic approaching the designed capacity of that roadway. Trucks supplying fuel and limestone to the power plant

[54] Greg Feltner and Brian Patton, Starfire Mine, Personal communication, June 26, 2002.

[55] Judge Donnie Newsome, Knott County Judge Executive, Personal communication, June 26, 2002.

represent less than one-half of the projected increase in overall traffic, but would represent a substantial increase in this type of traffic along KY 80 under the scenario in which little or no fuel is procured from the Starfire Mine.

As in the construction traffic projections, the majority of the additional volume is associated with anticipated employees at the industrial park. Those estimates are highly uncertain.

- There is the potential for traffic conflicts among the various users of the area (i.e., wildlife viewers) and the Starfire Mine, particularly along the new access road from KY 80. The mine, however, has indicated that it perceives the development of the new access road to be a net benefit while recognizing the additional traffic that may be associated with the plant and appurtenant facilities. The golf course and industrial park will not be developed without the power plant; the Starfire Mine and KMP will have initial discretion over whether these land uses offer a net benefit or not.

- Fugitive dust (dust produced by industrial operations and subject to regulation for mining operations) on the leasehold and surrounding mining areas is currently controlled by the Starfire Mine using water spray trucks. Such dust emissions are likely to increase during the first year of construction, due to increased traffic to the site. However, Starfire management has indicated that these increases will be minimal and additional dust suppression and corresponding expense will not be required. Fugitive dust will be reduced from baseline conditions once the newly paved access road becomes operational and can be used by mine traffic as well as traffic to the site.

- Road maintenance costs will increase somewhat on the major highways and along KY 1087. Property and severance tax revenues attributable to KMP and related coal demand can be used to defray these costs.

- Road traffic increases, especially truck traffic, could cause considerable impacts if this traffic migrates away from KY 80 and KY 15 or the newly constructed access road. Congestion, safety issues, dust and road maintenance costs would become significant issues.

Mitigation recommendations. Though the SAR does not specify any particular mitigation measures to alleviate or minimize impacts on traffic, the new access road that the State and KMP plan to develop (along with local participation) from KY 80 to the site is a key feature of the site development plan. In the absence of the new access road, there is the potential for substantial increases in truck and vehicle traffic along KY 1087, which is a narrow and winding road used by local residents as well as the Starfire Mine. BBC recommends, as mitigation measures, development of the new access road and strict instructions to construction and operation employees, truckers and vendors traveling to the site to minimize use of KY 1087 or other pre-existing access approaches to the site.

SECTION D.
Recommendations

In this Section, the study team presents recommendations concerning the proposed KMP project, including recommendations for further mitigation measures. The BBC team provides specific recommendations on the elements of the SAR that the Board might consider before arriving at a decision on KMP's pending application for a construction certificate.

In addition to recommendations specific to each element of the SAR that the Act requires the Board to consider, this section provides several overarching recommendations. The overarching recommendations take into account the lack of precedent and the importance of this first SAR review process in establishing standards for future applicants. We believe these recommendations to be feasible and of potential benefit in producing a better informed and more integrated review process.

Specific Mitigation Recommendations Related to SAR Elements

In the SAR and in subsequent discussions with the applicant, KMP and EnviroPower have suggested a number of measures to reduce negative impacts and increase positive effects. Based on these representations and the findings and conclusions presented earlier in this report, BBC recommends the following mitigation measures be implemented by the applicant.

1. The applicant should modify their access control and security plans to follow industry standards, as described in Section C.

2. KMP should modify their definition of the "site" to include additional portions of their leasehold in order to meet the setback requirements in the legislation and to fully contain the access control fence surrounding the plant.

3. Appropriate colors should be applied to the stack, pump house and diversion structure to minimize contrast with existing scenic surroundings.

4. The use of silencers during steam blows or releases and enclosure of boiler feed pumps should be installed to reduce project noise. These should be called out as a required mitigation commitment.

5. The water pumping plant should be designed and constructed to minimize its visibility and noise from KY 15 and the existing residence located across the North Fork of the Kentucky River. Industry standards, including internal noise baffling, should be employed to minimize any impacts associated with this facility.

6. Construction of the new access road by the Commonwealth of Kentucky, the applicant and Knott County from KY 80 to the site is a key mitigating feature of the site development plan and should be called out as a specific commitment. In the absence of the new access road, there is the potential for substantial increases in truck and vehicle traffic along KY 1087 which is a narrow and winding road used by local residents as well as the Starfire Mine.

7. In addition, there should be an explicit commitment by the project to issue strict instructions to employees and vendors traveling to the site to minimize use of KY 1087 or other pre-existing access approaches to the project.

8. KMP should commit to hiring and procurement practices intended to hire and buy locally to the maximum extent feasible in order to help ensure that net impacts to property values in the region are positive.

Overall Recommendations Concerning Siting Issues Related to the Proposed KMP Project

After reviewing and evaluating the applicant's SAR, visiting the site and gathering additional information and conducting further analyses where necessary, the BBC team recommends the following concerning the siting aspects of the proposed KMP project:

A. While we have noted a number of deficiencies in the SAR, we believe these deficiencies have been largely addressed in this report. We do not believe that additional data is likely to change the findings and conclusions or specific mitigation recommendations contained herein. Consequently, we do not recommend that the applicant be required to revise their SAR, as long as this document can be considered an essential companion volume to their May 31, 2002 site assessment as supplemented by the Response to Filing Deficiencies and response to staff data requests.

B. Presuming the project is developed as specified in the applicant's SAR and the supplemental information provided by the applicant, and presuming that the mitigation recommendations provided herein are implemented by the applicant, we do not believe there will be significant unmitigated impacts from the development and operation of the KMP project within the topic areas specified for the site assessment. Assuming the foregoing conditions, the BBC team would recommend that the Board approve the Application for a Certificate to Construct from the standpoint of siting considerations.

C. If within the purview of the Board, a bi-annual monitoring program is recommended to ensure that the KMP project is developed as assumed in this permit process and that impact mitigation measures successfully address potential negative effects. Some aspects of KMP are uncertain at this time, and the significance of future impacts are inherently uncertain. The Commonwealth would be well served to ensure negative impacts are minimized and positive effects are optimized.

Recommendations Concerning SAR Standards and Review Process

KMP is the first applicant to complete an SAR and participate in the Board's review process. As such, there were no clearly established standards for interpreting and implementing the legislative requirements concerning the level of analysis to be incorporated in the SAR. As the first to engage in the process as review consultants, we offer the following recommendations to the Board and PSC staff for the future:

1. As a precedent, this review can begin to set site assessment standards for each of the specific topic areas. These standards can be a minimum threshold for future applicants to enhance the quality of their SARs. Although KMP can legitimately argue that they did not have a template to follow, this should not be the case for subsequent applicants.

2. To facilitate review by the Board, future SARs should be organized to more comprehensively and clearly follow the specific elements required in the legislation. All of the necessary information should be contained in a single document. Board staff have also indicated that more detailed maps (e.g. 1:24,000) of electric transmission lines, new substations and gas transmission lines should be provided and that further details regarding gas supplies (including discussion of the gas source) to proposed plants should be provided.

3. To maximize the efficiency of the review and minimize the burden on the applicant, the Application for a Certificate to Construct (containing the applicant's SAR) should be provided to the Board's consultant immediately following receipt by the Board's staff and the consultant should join the Board's staff in their review for administrative completeness and the subsequent communication to the applicant (if necessary) regarding specific filing deficiencies. Complete responses can then be reasonably expected.