

**Final Report
Focused Management Audit of
The Fuel Procurement Functions of
Kentucky Utilities Company and
Louisville Gas and Electric Company**

Presented to:

The Kentucky Public Service Commission

By:



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Table of Contents

Chapter	Page
Executive Summary	
A. Purpose and Scope of this Report	ES-1
1. Background	ES-1
2. Audit Scope and Objectives	ES-1
3. Action Plans	ES-3
B. LG&E/KU Operating Summary	ES-3
1. LG&E Statistical Information	ES-4
2. KU Statistical Information	ES-5
C. Recommendation Summary	ES-6
 Audit Report Letter from LG&E Energy	
I. Organization, Staffing and Controls	
A. Scope	I-1
B. Background	I-1
C. Conclusions	I-12
D. Recommendations	I-17
 II. Fuels Planning	
A. Scope	II-1
B. Background	II-1
C. Conclusions	II-12
D. Recommendations	II-13
 III. Fuels Acquisition	
A. Scope	III-1
B. Background	III-1
C. Conclusions	III-18
D. Recommendations	III-24
 IV. Supply Management	
A. Scope	IV-1
B. Background	IV-1
C. Conclusions	IV-27
D. Recommendations	IV-31
 V. Affiliate Relations	
A. Scope	V-1
B. Background	V-1
C. Conclusions	V-7
D. Recommendations	V-15

List of Figures	Page
ES.1 LG&E Statistical Summary	ES-4
ES.2 KU Statistical Summary	ES-5
I.1 Corporate Fuels and By-Products Organization	I-3
II.1 Coal Burned Forecast versus Actual – Cane Run Station	II-5
II.2 Coal Burned Forecast versus Actual – Mill Creek Station	II-5
II.3 Coal Burned Forecast versus Actual – Trimble County Station	II-6
II.4 Coal Burned Forecast versus Actual – E.W. Brown Station	II-6
II.5 Coal Burned Forecast versus Actual – Ghent Unit #1	II-7
II.6 Coal Burned Forecast versus Actual – Ghent Units #2, #3, & #4	II-7
II.7 Coal Burned Forecast versus Actual – Green River Station	II-8
II.8 Coal Burned Forecast versus Actual – Tyrone Station	II-8
II.9 Coal Synfuel Utilization	II-9
II.10 Annual Demurrage Costs	II-11
III.1 Available Transportation Modes	III-7
III.2 Combustion Turbines	III-17
IV.1 LG&E All Plants Coal Inventory	IV-12
IV.2 Coal Inventory – Cane Run Station	IV-13
IV.3 Coal Inventory – Mill Creek Station	IV-13
IV.4 Coal Inventory – Trimble County Station	IV-14
IV.5 KU All Plants Coal Inventory	IV-14
IV.6 Coal Inventory – E.W. Brown Station	IV-15
IV.7 Coal Inventory – Ghent High Sulfur Coal	IV-15
IV.8 Coal Inventory – Ghent Low Sulfur Coal	IV-16
IV.9 Coal Inventory – Green River Station	IV-16
IV.10 Coal Inventory – Tyrone Station	IV-17
IV.11 2001 Coal Inventory Survey	IV-19
IV.12 2002 Coal Inventory Survey	IV-20
IV.13 2003 Coal Inventory Survey	IV-20
IV.14 Revenues from Sale of Coal Combustion By-Products	IV-24
IV.15 Tons of Coal Combustion By-Products Marketed	IV-24

Executive Summary

A. Purpose and Scope of this Report

1. Background

The Kentucky Public Service Commission (*Commission*) issued a Request for Proposals (*RFP*) seeking proposals for consulting services required to perform a focused management audit evaluating the operational and managerial aspects of the fuel procurement functions of Kentucky Utilities Company (*KU*) and Louisville Gas and Electric Company (*LG&E*), or collectively (*the Utilities*). For both *KU* and *LG&E*, this audit applies to their Kentucky retail electric businesses only, and is conducted as directed by the Commission's Order in Case No. 2000-00497-B and pursuant to KRS 278.255. The Liberty Consulting Group (*Liberty*) responded to this RFP and was subsequently awarded the contract to conduct the audit of *KU* and *LG&E*.

Liberty is a management and technical consulting firm that specializes in the public-utility industries. Liberty has extensive experience in conducting management and operations audits of utilities in the electric power, natural gas, and telecommunications industries. Liberty has served commissions in thirty-five different states and the District of Columbia in conducting focused management audits similar to this audit of *KU* and *LG&E*.

This report presents the results of Liberty's focused management audit of the operational and managerial aspects of the fuel procurement functions of *KU* and *LG&E*.

2. Audit Scope and Objectives

The overall objective of this audit is to examine all operational and managerial aspects of the fuel procurement functions of *KU* and *LG&E*, including the organizational structure and the operational interrelationship of fuel procurement management among *LG&E Energy*, *KU* and *LG&E*. Although the greatest effort is to focus on coal procurement, the procurement of natural gas and fuel oil for the Utilities' peaking units is to be included as well.

This is not intended to be a comprehensive management audit. Therefore, the scope of this project is limited to a review of the major functional areas and activities of *KU*, *LG&E*, and *LG&E Energy* that relate to fuel procurement. Accordingly, this review is to be highly focused on the policies and procedures governing *KU*'s, *LG&E*'s, and *LG&E Energy*'s fuel procurement, as well as the general management processes related to fuel procurement. In addition, this audit is not intended to search out any specific wrong-doing. Rather, it is a review and evaluation of the Utilities' current practices, policies, and organizational structure with respect to fuel procurement. All recommendations made will be forward looking and suggest reasonable ways for the Utilities to improve operations and policies.

**Focused Management Audit of the Fuel Procurement Functions of
Kentucky Utilities Company and Louisville Gas and Electric Company
Executive Summary**

The following six areas of inquiry, as required by the RFP, are incorporated into Liberty's work plan for this audit:

1. Review KU's and LG&E's monthly FAC filings, beginning in January 2001, to determine whether KU's and LG&E's fuel transactions have been disclosed in accordance with applicable regulations. Also, determine if the applicable regulations provide for adequate disclosure of all fuel transactions.
2. Review the bid solicitation and evaluation process to ensure a low cost and reliable coal supply.
3. Review the fuel vendor evaluation process to assure continued supplier quality and reliability to the maximum extent possible.
4. Appraise the organizational separation of regulated and non-regulated affiliates in relation to the fuel procurement function.
5. Review the reasonableness of fuel inventory levels and fuel inventory targets for each generating station.
6. Review the Utilities' compliance with all applicable Kentucky and Securities and Exchange Commission requirements for affiliate transactions focusing only on the Utilities' fuel procurement practices.

Both the Commission and the Utilities expect the final audit report to be objective and balanced and to include reasonable and meaningful recommendations, if warranted. Liberty conducted its work for this project in accordance with these guidelines and objectives and presents this report on its findings of the focused management audit of the operational and managerial aspects of the fuel procurement functions of KU and LG&E.

This project, and Liberty's report, has been organized along the lines of the major functions of electric utility fuel management. Accordingly, this report has been divided into five separate chapters as indicated in the table immediately below. This table also provides a cross-reference to indicate the chapters of the report in which each of the six issue areas from the RFP are addressed.

<u>Chapter</u>	<u>Chapter Title</u>	<u>RFP Issue Area</u>
One	Organization, Staffing and Controls	4
Two	Fuels Planning	All
Three	Fuels Acquisition	2,3
Four	Supply Management	1,5,6
Five	Affiliate Relations	4,6

3. Action Plans

Implementation of recommendations associated with this audit is an important part of the overall audit process. Therefore, the Commission has instituted an Action Plan process in order to secure a commitment from KU and LG&E to implement Liberty's recommendations as expeditiously as possible. This process includes a dialogue among KU, LG&E and Liberty regarding the proper action steps necessary to successfully implement each recommendation. Liberty will be responsible for the development of action plans necessary to implement each recommendation and will review the appropriateness of the detailed action steps developed by KU and LG&E.

B. LG&E and KU Operating Summary

Kentucky Utilities Company (*KU*) and Louisville Gas and Electric Company (*LG&E*) (*collectively, the Utilities*) are wholly-owned subsidiaries of LG&E Energy LLC (formerly known as LG&E Energy Corp.) (*LG&E Energy*). *KU* is a public utility that generates, transmits and distributes electric power for retail and wholesale sale. *LG&E* is a public utility that generates, transmits and distributes electric power for retail sale and also distributes natural gas for retail sale. The business address of both utilities is 220 W. Main Street, P.O. Box 32010, Louisville, KY 40232. *KU* sells electricity to customers in 77 Kentucky counties. *KU* also sells retail electricity to customers in Virginia, as well as wholesale (FERC jurisdiction) electricity to municipalities in Kentucky. *LG&E* sells electricity to customers in nine Kentucky counties.

1. LG&E Statistical Information¹

**Calendar Year 2002
Kentucky Jurisdictional Electric Only
Figure ES.1**

Total Sales Customers	381,395
Residential	334,328
Commercial	40,893
Industrial	407
Public Authorities	5,730
Sales for Resale	37
Total Sales in kWh	19,072,123,776
Employees	634
Net Utility Operating Income	\$102,850,818
Net Utility Plant	\$1,830,812,467
Operating Revenue	\$758,490,551
Total Utility Operating Expenses	\$655,639,733
Total O&M Expenses	\$503,200,453
Total Coal Purchases in tons	7,656,331
Total Cost for Coal (FERC Account 501)	\$184,106,845
Average Cost for Coal – \$/Ton	\$24.05

¹ LG&E Quarterly Supplemental Financial Statements to the Commission for 2002, and response to Data Request #6

2. KU Statistical Information²

**Calendar Year 2002
Kentucky Jurisdictional Electric Only
Figure ES.2**

Total Sales Customers	477,217
Residential	392,627
Commercial	74,107
Industrial	2,011
Public Authorities	8,411
Sales for Resale	61
Total Sales in kWh	22,511,610,362
Employees	948
Net Utility Operating Income	\$92,752,046
Net Utility Plant	\$1,519,747,507
Operating Revenue	\$740,791,692
Total Utility Operating Expenses	\$648,039,646
Total O&M Expenses	\$507,491,440
Total Coal Purchases in tons	7,321,547
Total Cost for Coal (FERC Account 501)	\$232,323,658
Average Cost for Coal - \$/Ton	\$31.73

² KU Quarterly Supplemental Financial Statements to the Commission for 2002, and response to Data Request #6.

C. Recommendation Summary

During the course of this project, Liberty used a complementary set of work steps and methods. Liberty interviewed personnel in the LG&E Energy organization, with focus on those responsible for fuels management. Liberty also reviewed data and documents, and toured the Ghent System Laboratory and the fuel handling areas of the Ghent and Mill Creek Generating Stations. At the completion of its data gathering and analysis, Liberty then prepared observations and findings about performance in each of the five areas of management and performance under review. Liberty then drew conclusion, and formed recommendations for each conclusion that identified an open need. The following list summarizes these recommendations categorized by each of the five principal areas of investigation.

Chapter One - Organization, Staffing and Controls

1. Revise and update job descriptions for personnel in the Fuels Department so that they are current and properly reflect the current responsibilities of the position.
2. Improve communication within the Fuels Department, and between the Fuels Department and higher levels of management.
3. Improve the performance management system within the Fuels Department by adding more quantifiable and measurable goals for individual performance objectives.
4. Revise and update the Fuel Procurement Policies and Procedures to bring more specificity to these procedures, and to add certain procedures that are missing.
5. Revise the Fuel Procurement and Policies Procedures to expand the detail related to the requirements and prohibitions for dealing with the non-regulated affiliate, WKE, on fuel management matters.
6. Enhance the Corporate Fuels and By-Products Monthly Report provided to senior management to make this report more user-friendly.
7. Develop a long-term plan for improvement of the Fuels Department's electronic fuel management system.

Chapter Two - Fuels Planning

No Recommendations

Chapter Three - Fuels Acquisition

1. Change the focus of coal procurement in order to shift the objective from procurement on the basis of the lowest delivered cost of coal to power plants to a new focus of procurement on the basis of selecting coal supplies that will provide the lowest delivered cost of electrical energy, consistent with other objectives of reliability of both coal and power supply, and compliance with environmental and other regulations.
2. Expand the current corporate objective related to consideration of alternate fuel specifications in order to improve profitability of off-system sales, by development of a new objective of also considering alternative fuel specifications in order to reduce costs to ratepayers.
3. Develop a new plan for coal solicitations that includes testing and evaluation of joint KU and LG&E solicitations in order to take advantage of any economies of scale that would enable coal suppliers who provide coal to both KU and LG&E to offer pricing, terms and conditions that might be more attractive than possible under separate solicitation and bidding processes.

Chapter Four - Supply Management

1. Develop new and improved procedures for handling of information on coal weights as measured on KU and LG&E scales.
2. Revise the procedures for marking and handling coal samples to standardize this marking throughout KU and LG&E, to conceal the identity of the coal suppliers associated with these samples, and keep the samples under appropriate lock and key.
3. Immediately investigate and report to the Commission on the causes of the consistent trend in physical measurement of coal pile inventories, which has shown that, for the last three years, the measured inventory has been significantly more than the book inventory at a number of generating stations.

Chapter Five - Affiliate Relations

1. Include a requirement for contemporaneous documentation of the pricing basis for all affiliate transactions in the revised Fuel Procurement Policies and Procedures.
2. Develop a plan to move the fuel-procurement function for WKE to its own department in the WKE organization.



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February 20, 2004

Dr. John A. Rogness
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, KY 40601

RE: Impressions and Feedback on 2003 Fuel Management Audit

Dear Dr. Rogness:

Kentucky Utilities Company ("KU") and Louisville Gas and Electric Company ("LG&E") (collectively, "the Companies") welcome this opportunity to present their impressions and feedback on the audit process from the recently completed 2003 Fuel Management Audit. As stated at the beginning of the audit, the Companies hoped this process would lead to observations and insights on how we might improve what we already consider to be a superior fuels management and procurement process.

As you know, there were differences of opinion between the Companies and the auditor, the Liberty Consulting Group, during the discovery process. However, KU and LG&E believe that, with the cooperation of the staff of the Commission's Management Audit Branch, those questions were resolved. Furthermore, while KU and LG&E do not necessarily agree with all of the findings and recommendations included in the audit report, we look forward to the opportunity to further explore these differences of opinion as we develop the Audit Action Plans in the coming weeks.

Finally, KU and LG&E very much appreciated the professionalism, courtesy, and thoroughness that the Liberty Consulting Group staff demonstrated throughout the process.

Sincerely yours,

A handwritten signature in black ink, appearing to read "M. Beer", written over a light blue horizontal line.

Michael S. Beer
Vice President
Rates and Regulatory Affairs

I. Organization, Staffing and Controls

A. Scope

This chapter addresses the following topics:

- Organization and Staffing
- Approval Authorities
- Work Process Definition and Control
- Documentation Requirements
- Internal Auditing

B. Background

1. Organization and Staffing

Background¹

Kentucky Utilities Company (*KU*) and Louisville Gas and Electric Company (*LG&E*) (*collectively, the Utilities*) are wholly-owned subsidiaries of LG&E Energy LLC (formerly known as LG&E Energy Corp.) (*LG&E Energy*). *KU* is a public utility that generates, transmits and distributes electric power for retail and wholesale sale. *LG&E* is a public utility that generates, transmits and distributes electric power for retail sale and also distributes natural gas for retail sale. The business address of both utilities is 220 W. Main Street, P.O. Box 32010, Louisville, KY 40232. *KU* sells electricity to customers in 77 Kentucky counties. *KU* also sells retail electricity to customers in Virginia, as well as wholesale (FERC jurisdiction) electricity to municipalities in Kentucky. *LG&E* sells electricity to customers in nine Kentucky counties.

In April 1997, *LG&E Energy*, the holding company for *LG&E*, offered to acquire all of the outstanding shares of *KU Energy Corporation (KU Energy)*, the holding company for *KU*. In May 1998, following all the required regulatory approvals, this acquisition was completed with *LG&E Energy* as the surviving corporation and with *LG&E* and *KU* as direct subsidiaries of *LG&E Energy*.

In February 2000, the Boards of Directors of *LG&E Energy Corp.* and *Powergen plc (Powergen)* of the United Kingdom announced their decision that *Powergen* would acquire *LG&E Energy (the Powergen Acquisition)*.

In December 2000, following the necessary regulatory approvals, the acquisition was completed, with *LG&E Energy* becoming a subsidiary of *Powergen*, and with *LG&E* and *KU* remaining

¹ RFP for this project dated August 27, 2003.

utility subsidiaries of LG&E Energy. Following the consummation of the Powergen Acquisition, LG&E and KU became part of the Powergen holding company system under the Public Utilities Holding Company Act.

In April 2001, the Boards of Directors of Powergen and E.ON AG (*E.ON*) of the Federal Republic of Germany announced their decision that E.ON would acquire all of the outstanding shares of Powergen (*the E.ON Acquisition*).

In July 2002, following the requisite regulatory approvals, that acquisition was completed, with LG&E Energy becoming a subsidiary of E.ON and with LG&E and KU remaining subsidiaries of LG&E Energy.

In March 2003, as a part of a restructuring, LG&E Energy is no longer a subsidiary of Powergen, but is a wholly owned subsidiary of E.ON US Investments Corp., a subsidiary of E.ON. Effective December 30, 2003 LG&E Energy Corp. changed its form of business organization and is now called LG&E Energy LLC (a Kentucky limited liability company); all of the above described relationships with E.ON, LG&E, and KU remain the same

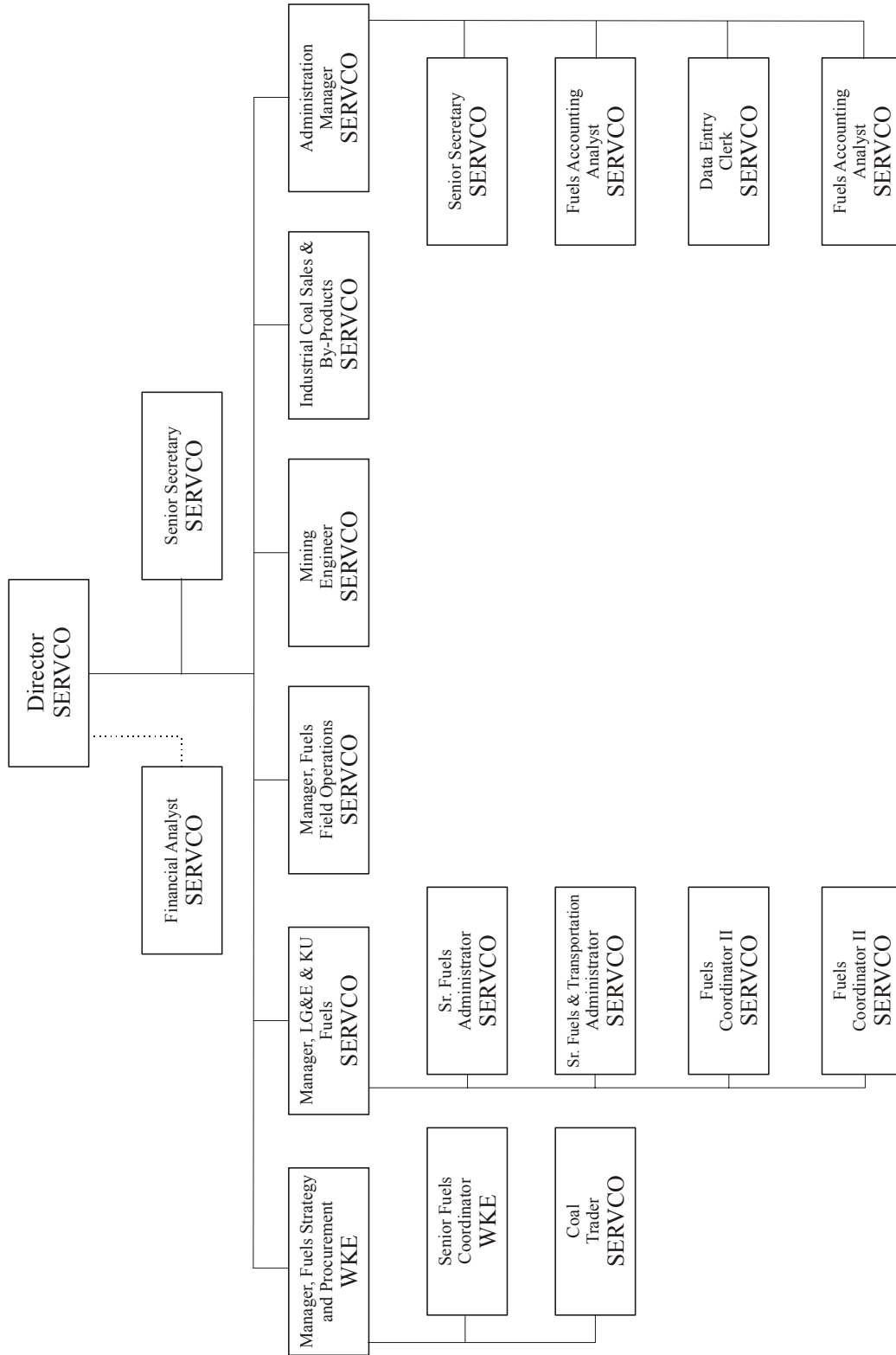
As a result of both the Powergen Acquisition and the E.ON Acquisition, LG&E and KU are part of a registered holding company system under the Public Utility Holding Company Act. As such, LG&E Energy Services Inc. (*SERVCO*) was formed to provide services both to LG&E and KU, and to other LG&E Energy affiliates within the registered holding company system.

Organization Structure

At the time of the audit, the Corporate Fuels and By-Products Department (*Fuels Department or Department*) of *SERVCO* had responsibility for procurement and management of all fuels required for power generation at Kentucky Utilities Company (*KU*), Louisville Gas and Electric Company (*LG&E*), and Western Kentucky Energy (*WKE*), a non-regulated affiliate. The majority of the employees in the Fuels Department are employees of *SERVCO* but a few are employees of *WKE*. The Department is led by a Director, and reporting to this individual are four managers responsible for various aspects of fuel procurement and management and two individual contributors as indicated in the organization chart below, Figure I.1.² The Director reports directly to the Senior Vice President, Energy Marketing for LG&E Energy. This is a new reporting relationship, effective February 2003, as the previous individual filling this Director's position reported to the Senior Vice President, Energy Services.

² Response to Data Request #14.

**Corporate Fuels and By-Products Organization
Figure I.1**



The Department is responsible for development and implementation of overall corporate strategy designed to maximize the commercial value of fuels and associated by-products. This includes the purchasing of coal for generation and industrial sales, procurement of limestone for the regulated utilities of KU and LG&E, the procurement of limestone and lime for WKE and the commercialization of by-products. The Department strategically supports the objective of being a low cost electric generator, and is responsible for the development and implementation of fuel purchasing policies, and the negotiation of both long-term and short-term fuel purchases as necessary to support this objective.³

As indicated on the above organization chart, the Fuels Department is responsible for procurement and management of fuels for both the regulated utilities of KU and LG&E and the WKE operations of LG&E Energy. All of these activities are managed by the Director of the Department. Liberty is concerned that the Director has responsibility for procurement of generation fuel for both the regulated and the non-regulated sides of the business, and that some of the members of the Fuels Department are actually employees of WKE, as opposed to being employees of the organization in which they work, SERVCO. Liberty discusses these issues in considerable detail in Chapter V, Affiliate Relations.

All personnel in this Department are located on the same floor of the Utilities' main headquarters building in Louisville, Kentucky. However, those personnel directly responsible for procurement of fuels for the regulated utilities, KU and LG&E, including the Manager, LG&E and KU Fuels, are physically separated from all other personnel in the Department and are located within an enclosed area on this floor. This enclosed area is posted as a restricted area, but access to the space is not controlled. This physical separation is relatively new, having occurred in early 2003.

The Director is new to this position as of February 2003, replacing the individual that had been in that position for a number of years.⁴ However, the new Director has a long history of work with LG&E/KU, having previously been the Director, Environmental Affairs for the Utilities.

There was no change in the organizational structure of the Fuels Department when the new Director joined the organization. However, effective June 1, 2003, the administrative responsibilities were consolidated under the new position of Administration Manager.

General responsibilities for each of the direct reports to the Director of the Fuels Department are as follows:⁵

- *Manager, Fuels Strategy and Procurement – WKE*

This manager is responsible for negotiating all fuel, reagent, and transportation contracts for Non-Utility operations. This position is also responsible for negotiations pertaining to

³ Response to Data Request #38.

⁴ Interview of Caryl Pfeiffer conducted by Larry Koppelman and Don Spangenberg on November 18, 2003.

⁵ Response to Data Request #38.

coal marketing, options, contract mining, and any other project negotiations related to fuels or as assigned by the Director. This position is also responsible for strategy development to ensure LG&E non-utility generation is profitable, specifically in the areas related to fuel, reagent, and transportation for both short and long-term.

This manager is in an unusual position, in that he is on the payroll of WKE, but reports to the Director of the Fuels Department, who is a SERVCO employee.

The individual currently in this position has a long history of work in the energy industry, and has been with LG&E in coal-related positions for approximately 14 years. He has held his current position since 1999. He has three bachelor's degrees, and an MBA in Management & Finance.

- *Manager, LG&E and KU Fuels – SERVCO*

This manager is responsible for supervising and managing the procurement of coal supply for LG&E and KU and for the transportation of coal and limestone to the power plants to assure an adequate inventory of coal and limestone of proper quality at the most economic cost.

The individual currently in this position has approximately 24 years of experience in the coal industry, and had been with Big Rivers (the rural electric cooperative from which WKE leases its generation assets) as well as with KU and LG&E approximately 18 years. He has been in his current position since 1998. He has a bachelor's degree and an MBA.

- *Manager, Fuels Field Operations – SERVCO*

This manager is responsible for the maximization of profits and minimization of costs for all fuel procurement and utilization for LG&E and KU operations. The individual in this position is continually in the field observing operations at both the coal mines of suppliers and the coal handling operations at LG&E and KU facilities.

The individual currently in this position has approximately 24 years of experience in the coal industry, and has been with LG&E Energy in his current position since 2002. He has a bachelor's degree in Business Administration.

- *Mining Engineer – SERVCO*

This position is responsible for bringing the expertise of mining engineering to LG&E's and KU's observation of the operations of coal suppliers, as well as leading special technical projects involving fuel handling operations at LG&E and KU facilities. The position plays a significant role in the evaluation of the operations of both current coal suppliers and new coal suppliers.

The individual currently in this position has a degree in Mining Engineering, and has approximately sixteen years of experience in the coal industry. He has been with LG&E Energy in his current position since 1996.

- *Industrial Coal Sales & By-Products – SERVCO*

This position is responsible for sale of coal to industrial customers, and for the sale of coal combustion by-products produced by the power plants.

The individual currently in this position has approximately 27 years of experience with LG&E Energy in coal-related positions, and has held his current position since 1998.

- *Administration Manager, SERVCO*

This manager is responsible for planning and performing administrative, accounting, budgeting and financial activities as it relates to fuels and by-products.

The individual currently in this position has approximately 25 years of experience in the field of accounting and started work with Big Rivers in 1981, moving on to WKE in 1998. She has held her current position with LG&E Energy since mid-2003. She is a Certified Public Accountant, has a bachelor's degree and a master's degree.

Job Descriptions

Performance of individuals in the Fuels Department is guided by formal job descriptions typical of the fuel management business that specify responsibilities, accountabilities and requirements of the position.⁶ Individuals interviewed feel that in some way their performance is judged by the descriptions of position responsibilities contained in these job descriptions, but that these job descriptions are not the primary determinant of job performance.⁷

The majority of the job descriptions reviewed as part of this audit are considerably out of date, with effective dates in the 1998 and 1999 time period, and do not describe the current responsibilities of the position.⁸ In fact, even a job description written in 2003 for the Administration Manager improperly reflects that this individual has responsibility for monitoring LG&E/KU/WKE positions and profitability to determine if current forecasts are achievable, and making recommendations for changes in strategy or direction to meet price targets. Therefore, use of job descriptions in any performance evaluation process is limited.

⁶ Response to Data Request #38.

⁷ Interviews conducted by Don Spangenberg on December 2, 3, and 4 2003.

⁸ Interviews conducted by Don Spangenberg on December 2, 3, and 4 2003 and Response to Data Request #38.

Personnel Performance

All personnel in the Fuels Department are evaluated annually as part of a corporate performance evaluation process. As part of this evaluation, an employee's "at risk" portion of his salary is determined under the "Team Incentive Award" (TIA) Plan. This process contains both personal measures for employees, as well as broader corporate measures.

Individual goals established for Fuels Department personnel under this program tend to be general in nature, as opposed to being specifically related to quantifiable measures that could impact fuel costs or efficiency of fuel utilization.⁹ Typical goals for the program for Fuels Department personnel include improving customer service (the plants are the customers) and improving individual knowledge of the coal market.

Communication

During the process of conducting interviews of personnel in the Fuels Department, Liberty found that communication between members of the Department could be improved. The first indicator of this was that the same question asked of each member of the Department resulted in different answers. For example, some personnel were not sure of where inventory policy came from, how it was established, how often it was changed, or what the specific coal inventory targets were. This was in spite of the fact that the Director of the Department had recently conducted a detailed coal inventory policy study, as described in detail in Chapter IV, Supply Management. Another example is the range of answers received on questions related to the ratio of spot to term contracts that the Department seeks to establish. Some personnel were aware of specific targets established by the Director, and others were not. Others indicated that the targets were adjusted from time-to-time as the situation dictated. Another example related to relatively infrequent discussions between the Fuels Administrators on how to best optimize the fuel supplies for KU and LG&E on an integrated basis, as opposed to what tends to be fuel management of these fuel supplies on more of an individual KU and an individual LG&E basis. Finally, discussions with the Director of the Department indicated that she felt the members of the Department tended to operate on a "silo" basis.¹⁰

Liberty also found that communication between upper levels of management and members of the Department was not as good as it could be. For example, it was not clear how the fuel-related objectives in the Corporate Business Plan were communicated to members of the Department, or whether or not these objectives had been translated into performance measures in the performance management system for these individuals. Further, the Senior Vice President of Energy Marketing had a very different understanding on the meaning of one of these objectives, compared to the understanding held by one of the managers of the Fuels Department. The root of this misunderstanding was that the manager had not seen the corporate objective.

⁹ Interviews of Bill Gilbert and Steve Dufour conducted by Don Spangenberg on December 2, 2003.

¹⁰ Interview with Caryl Pfeiffer by Don Spangenberg on December 2, 2003.

2. *Approval Authorities*

The Fuels Department has established, and uses, a clearly defined set of procedures related to approval authorities. These procedures are set forth in the Fuel Procurement Policies and Procedures, and in the Approval Authority that is contained in these procedures. The Approval Authority clearly defines the level of authority for various positions in LG&E Energy, including the Fuels Department, and the dollar magnitude and the term of the commitment that each position can authorize.

In addition to the definition provided by these procedures, the Fuels Department uses a specific documented “Award Recommendation” process for authorization of all fuel and fuel transportation procurement. In addition, fuel contract re-openers or re-negotiations are also subject to the Award Recommendation process if additional dollar or term commitments are involved.

The Award Recommendation process is quite thorough and typically includes a justification for the procurement as compared to forecasts, an analysis of the subject procurement compared to alternatives, an analysis of the capability of the supplier, a notation of any savings achieved through negotiations, and a comparison of the procurement to existing contracts. The last page of the document is the approval page containing space for signatures of all individuals as required by the limits of the Approval Authority.

The Award Recommendation process is initiated by one of the Senior Fuels Administrators and is forwarded up through the management chain of command as far as is necessary in order to satisfy the approval requirements of the Approval Authority. Fuels Department personnel interviewed were aware of these approval requirements and in many cases were involved in the preparation of information, and in the analyses that supported the recommendations contained in the Award Recommendation.

3. *Work Process Definition and Control*

The work of individuals in the Fuels Department is guided by a set of procedures entitled “Fuel Department Policies and Procedures”.¹¹ Personnel in the Department are aware of these procedures, and know where to find a copy for reference. In most cases, individuals have their own copies of the procedures.

These procedures are quite general in nature and do not provide enough meaningful guidance for Fuels Department personnel in many of the areas of fuel management so important to obtaining and maintaining the necessary supplies of fuel, at the lowest possible cost. While these procedures were recently revised in 2002, these revisions did not provide the necessary detail for more effective guidance of fuel management operations.

¹¹ Response to Data Request #9.

In addition, all LG&E Energy personnel are guided by a broader “LG&E Energy Corporate Procurement Policy”.¹² This is a two page policy that indicates all corporate procurement will be guided by the objective of obtaining the maximum value available for every expenditure. This policy goes on to incorporate by reference a number of other very specific policies as follows:

- Code of Business Conduct
- Purchasing Guidelines
- Reserved Authority Limit Matrices, and
- Procurement Card Policies

On an annual basis, all employees must certify that they have read, understand, and are complying with the Code of Business Conduct.¹³

In addition, LG&E Energy’s “Statement of Trading” includes a section that describes the responsibilities of the Fuels Department related to their energy commodity transactions.¹⁴

Personnel in the Fuels Department are generally aware of all of these procedures and understanding varied from individual to individual.¹⁵ However, all individuals interviewed had a more detailed knowledge of the Code of Business Conduct that they must personally attest to each year. This annual process is now handled electronically with each individual.

LG&E Energy is guided by a Corporate Business Plan that is published each year.¹⁶ Within this plan is a specific section related to Solid Fuel Strategies. The individuals within the Fuels Department did not know of the details of this fuel-related plan, because it had not been provided to them.¹⁷ Further discussion of the fuel section of this Corporate Business Plan is contained in Chapter IV, Supply Management.

Finally, the Fuels Department regularly establishes its own goals and objectives that pertain to operations for the coming year.¹⁸ These objectives do not address any direct or quantifiable efforts to lower the cost of fuel procured, to improve the efficiencies of fuel utilization, or to procure fuel that will result in lower costs of electrical energy produced by the power generating stations. The goals and objectives for 2003 address four areas: 1) Inventory Levels; 2) Coal Combustion By-Products; 3) Powder River Basin Coal; and 4) Supplier Diversity.

¹² Response to Data Request #55.

¹³ Interview with Caryl Pfeiffer by Don Spangenberg and Larry Koppelman on November 18, 2003.

¹⁴ Response to Data Request #60.

¹⁵ Interviews of Department personnel (Gilbert, Dufour, Davis, Schroeder) conducted by Don Spangenberg on December 2 and 3, 2003.

¹⁶ Response to Data Request #8.

¹⁷ Interviews with Martyn Gallus and Mike Dotson on December 17, 2003 by Don Spangenberg.

¹⁸ Response to Data Request #33.

4. Documentation Requirements

Activities of the Fuels Department are thoroughly documented in a number of ways. Primary recordkeeping related to fuel transactions is handled through the Coal Supply Management System (CSMS). This is a computerized fuel management system that collects and stores all information necessary for tracking fuel transactions, including coal quantities and coal qualities shipped and received, supplier history and performance, coal price information, and associated accounting information related to cash flows and payments to vendors. The CSMS system is old by current standards, is a system written in COBOL language, and is difficult to query for specific reports or pieces of information.

In some ways, the CSMS system is a handicap to the Fuels Department because it is difficult to query for specific information and because of the large volume of reports necessary to obtain information required for normal management of fuel operations. The Fuels Department has established a users group that meets regularly to consider enhancements to CSMS in order to optimize the use of CSMS, to prioritize the implementation of these enhancements, and to coordinate the efforts of the users of the system. The users group includes a number of representatives from the Fuels Department, as well as a representative from the Information Technology Department who is regularly asked to produce specifically designed reports, or solve other ongoing issues. Users of CSMS can access the system through terminals at their individual desks. Access to the system is appropriately controlled on a “need-to-know” basis through a password system. In spite of the inefficiencies created by a system as old as CSMS, the system does provide the basic information necessary for fuel management. The Fuels Department has investigated alternatives to CSMS but concluded that at the present time the significant expenditures necessary to obtain a new system and to have it tailored to the specific needs of the Department could not be justified. Also, CSMS runs on the same platform as the Utilities’ Customer Information System, and as long as the customer system is not changed, there is some justification for keeping the current system for fuel management.

In addition to the many reports produced regularly by CSMS, the Fuels Department produces a monthly management report entitled “Corporate Fuels and By-Products Monthly Report.”¹⁹ This report is circulated within the Department, and also to an extensive list of 22 individuals in top management in order to keep senior management informed of activities in the fuel area. The report contains an Executive Summary, a tabulation of Financial Performance, a tabulation of the current Inventory Position, a summary of Power Plant Operations including sampling/scale operations and railcar status, and a summary of Industrial Coal and By-Products activities. The report is comprehensive and probably provides more information than required by most members of the senior management team. More summary information would be helpful. The report does not contain any graphs to portray comparisons of fuel prices, inventory levels, and fuel burns, with targets or forecast information; such visual displays often assist senior management in obtaining value from these types of reports in a more efficient manner.

¹⁹ Response to Data Request #39.

The Award Recommendation process described in Section 2 of this Chapter serves as both a communication vehicle, and a record for Fuels Department files. Communication is achieved through the process of preparation and review as the document is first created in the Fuels Department, and then moved through the various levels of management for approval. The document also provides a detailed history of all bids received in response to a specific solicitation, along with the justification of award to the selected coal supplier or suppliers.

The Fuel Procurement Policies and Procedures contain a section that addresses the specific records to be kept by the Department, including the following:²⁰

- Contract documents, amendments, Purchase Orders and escalation documentation;
- General correspondence;
- Invoice verification data;
- Delivery records and quality analyses data;
- Inspection reports and other data;
- Railcar information;
- Lists of current and potential coal suppliers.

5. Internal Auditing

LG&E Energy conducts an internal audit of the fuel procurement cycle every two years.²¹ The last audit was conducted in 2002 and the next scheduled fuel procurement audit is in 2004. The objectives of these audits are to evaluate the adequacy and effectiveness of LG&E Energy's system of internal accounting controls using PricewaterhouseCoopers LLP's approach to identify business risks and the related control objectives, and test compliance with control objectives where required.

The last audit conducted covered the time period from September 1, 2001 through March 31, 2002 and included the Cane Run, Ghent, and Coleman generating stations. Based upon the audit work conducted at that time, it was determined that the internal controls over the fuels procurement cycle were appropriate and operating effectively.

²⁰ Response to Data Request #9.

²¹ Response to Data Request #10.

C. Conclusions

1. Personnel in the Fuels Department have solid analytical skills and sound experience in the coal area, which suits the objectives of the organization.

Fuels Department personnel have sufficient experience in the analysis and evaluation of major coal purchases and in the administration of coal contracts and purchase orders. Liberty's review

of work products created within the department during this audit indicated that the capabilities of all of the individuals in the department are strong and consistently applied. Interviews with department members indicated that these employees possess the proper skills to perform the tasks that they have been given. They have also demonstrated the ability to grow into larger roles if their development is appropriately supported.

2. Job descriptions related to fuel procurement and management are out of date and do not adequately relate to the current responsibilities of the position. (Recommendation #1)

Most job descriptions related to fuel procurement and management functions were last written several years ago and therefore do not reflect the current responsibilities of these positions. In the case of the manager of regulatory fuel procurement, the first item of responsibility pertains to procurement of fuel that will result in the lowest cost generation – an objective that is entirely appropriate, but that may not have been achieved by the Department for a number of years because of the current methods of fuel procurement based on lowest delivered cost. This particular issue will be fully discussed in Chapter IV, Supply Management. Also, the job description of the Administration Manager, even though revised in early 2003, contains description of responsibility for monitoring LG&E/KU/WKE's positions and profitability to determine if current forecasts are achievable, and to recommend changes in strategy or direction to meet price targets. This is the responsibility of either the Manager, LG&E & KU Fuels, or the Manager, Fuels Strategy & Procurement – WKE.

3. Communication within the Fuels Department, and between the Fuels Department and upper management, could be improved. (Recommendation #2)

Interviews with personnel in the Fuels Department indicated that communication within the Department could be improved. Liberty received a number of different answers to the same question, indicating a lack of effective communication within the Department. Also, important studies and policies related to coal inventory control were not uniformly understood, nor was there uniform understanding of the spot/contract mix established by the Director of the Department. There is not as much discussion as there should be between members of the Department on how they can help each other, or how each of their various responsibilities on fuel procurement can be optimized. Some discussion is held between Fuels Administrators as it relates to high sulfur coal for the Ghent Station, but there were insufficient indications of broader

efforts to optimize fuel management between the KU and the LG&E sides of the business. This “silo” effect was confirmed in discussions with the Director of the Department, who indicated that one of the goals for the next year was to make the entire fuel procurement and management process more transparent from position to position through improved communication and cross-training.²²

In an interview with a member of the senior management team, it was not clear that fuel-related action items in the corporate business plan had been well communicated to appropriate members of the Fuels Department.²³ It was clear that an important fuel related action item was not part of the performance target for the current, or former, Director of the Fuels Department. It was also clear that the manager of regulatory fuel procurement was not aware of a specific fuel-related action item in the corporate business plan.²⁴

4. The performance management system for individuals within the Fuels Department does not contain sufficient quantifiable objectives related to improvement in fuel costs, improvement in efficiency of fuel utilization, or improvement in the costs of power generation due to better fuel procurement. (Recommendation #3)

LG&E Energy uses a performance management system for individuals within the Fuels Department that includes an annual evaluation of each employee’s performance, and for most employees is based on LG&E Energy’s TIA Plan. Within this system, each employee is given annual objectives, or targets, against which his performance is measured at the end of each period. These targets tend to be general in nature, as opposed to specific and quantifiable objectives related to improvement in fuel costs, to improvement in efficiency of fuel utilization, or to improvement in the costs of power generation due to better fuel procurement. Typical objectives include improving customer service (the plants are the customers) and improving individual knowledge of the coal market.

5. LG&E Energy has a reasonable system for conduct of internal audits of the operations of the Fuels Department.

LG&E Energy conducts an internal audit of the fuel procurement cycle every two years. The last audit was conducted in 2002 and the next scheduled fuel procurement audit is in 2004. The objectives of these audits are to evaluate the adequacy and effectiveness of LG&E Energy’s system of internal accounting controls using PricewaterhouseCoopers LLP’s approach to identify business risks and the related control objectives, and test compliance with control objectives where required. This is a satisfactory time interval for conduct of these types of audits, and the objectives of the audits are appropriate.

The last audit conducted covered the time period from September 1, 2001 through March 31, 2002 and included the Cane Run, Ghent, and Coleman generating stations. Based upon the audit

²² Interview with Caryl Pfeiffer by Don Spangenberg on December 2, 2003.

²³ Interview with Martyn Gallus by Don Spangenberg and Larry Koppelman on December 17, 2003.

²⁴ Interviews with Martyn Gallus and Mike Dotson by Don Spangenberg on December 17, 2003.

work conducted at that time, it was determined that the internal controls over the fuels procurement cycle were appropriate and operating effectively.

6. The Fuel Procurement Policies and Procedures are too general in nature and omit certain important aspects of electric utility fuel procurement and management.
(Recommendation #4)

The Fuel Procurement Policies and Procedures are contained in an eleven-page document that generally guides the activities of the Fuels Department. Even though these procedures were revised in 2002, these revisions did not provide sufficient detail for effective management of fuel procurement operations. The following specific deficiencies were found in these procedures:

- The stated objective of the policy is to obtain “Fuel of sufficient quality at the lowest cost, . . .” The actual cost target is not identified, and should be clearly specified at that fuel which will provide the lowest possible cost of electrical energy delivered to the bus-bar, and of course, consistent with the other qualifiers related to quantity, reliability, environmental limitations, etc.
- The procedures indicate that bids are evaluated and contracts awarded based upon “appropriate criteria”, but do not give any guidance as to what this criteria might include. Typically, the list of criteria is a long one, and should include at the end some discussion that contracts are awarded on an evaluated cost basis related to those coals that will result in the lowest possible cost of electrical energy delivered to the bus-bar, consistent with the other qualifiers related to supplier reliability, environmental constraints, transportation options, etc.
- The procedures contain no provisions for cross-checks or quality control to ensure the security of coal bid information. There are no procedural provisions that introduce functional separation into the bid evaluation process so that any one individual is not responsible for too large a portion of the process from bid opening, to handling of bid data, to entry of bid data onto spreadsheets, to custody of these spreadsheets, to analysis of bid data, to recommendations for procurement based upon this data.
- The procedures address inventory levels, but do not indicate where the inventory targets come from, when they are reviewed, what they are, or whose responsibility it is to maintain these inventory levels. Stating that “coal inventories are monitored regularly via the Company’s Fuel management department” does not provide sufficient guidance beyond the monitoring phase of this important fuel management activity. Someone must be responsible for the action part of this process.
- The procedures contain no mention of responsibilities or procedures for handling the receipt of coal, weighing of coal, and sampling of coal, nor how the results of these fuel management activities end up in the hands of the managers in the Fuels Department who must eventually take action based on these measurements.
- The procedures contain no discussion of emission allowance management, who is responsible, and how the requirements of emission management impact the fuel management activities of personnel in the Fuels Department.

- The procedures contain no discussion as to how the coal supplier/vendor list is maintained. It is important that there is clear understanding on what the requirements are, if any, for getting on this list, and what the requirements are, if any, for staying on this list of potential coal suppliers.
- The procedures related to affiliate transactions contain only five lines of text and are not sufficient to cover the complexities of affiliate relationships. If thorough affiliate transaction guidance was provided elsewhere, reference to more detail procedures would be appropriate. However, sufficient guidance on activities in the affiliate area is not provided elsewhere. Complete discussion of affiliate procedures is contained in Conclusion #7 of this Chapter.
- The procedures contain no page numbers, no dates anywhere except on the signature page, and no indications of revisions. Typically, fuel management procedures contain these items and indicate on each page, the number of the page, the effective date of that page, and the effective date of any revisions, along with the revision number.

7. The necessary procedures detailing the requirements and prohibitions related to dealing with the non-regulated affiliate, WKE, on fuel management matters do not exist. (Recommendation #5)

Interviews with personnel in the Fuels Department indicated that guidance in the area of affiliate transactions came as a result of training concerning affiliate transactions that each individual had attended and each individual's own standards for business conduct and ethical behavior. While Liberty found no evidence of inappropriate behavior, more formal guidelines for affiliate relationships beyond an individual's conscience must exist.

While the fuel procurement procedures do indicate that KU or LG&E may purchase coal from an affiliate at cost, this cost element is not defined in terms of whose cost is at issue. In addition, the procedures must include specific language from all relevant regulations such as, but not limited to, the Kentucky regulations pertaining to affiliate transactions (KRS 278.2201-278.2207). These regulations are much more extensive than the five lines of text in the fuel procedures, and provide an expanded definition of when coal may be purchased from an affiliate and the pricing requirements of such a transaction. Fuel procurement procedures do not indicate that affiliate transactions must be in accordance with the Kentucky regulations on this subject.

Personnel responsible for procurement and management of fuels for both the regulated utilities of KU/LG&E and the non-regulated utility of WKE are not only within the same department under the management of the same Director, but the two groups, while physically separated, are in close physical proximity to each other. Therefore, there must be clear written guidance, in the form of affiliate transaction procedures, that describe what activities are permitted and what activities are not permitted between each of these groups. These procedures must address what communications are permitted and prohibited, what exchanges of information are permitted and prohibited, and what verbal discussions (phone or face-to-face) are permitted and prohibited.

8. The Fuels Department uses an appropriate Approval Authority Matrix for definition of levels of approval required for fuel commitments of certain dollar magnitude and contract duration.

The Fuel Procurement Policies and Procedures contain an Approval Authority Matrix that clearly defines the extent of the approval authority for various levels of management, starting with the Manager, Fuels and extending up to include the LG&E Energy's Chief Executive Officer. Personnel within the Fuels Department understand the requirements of this Approval Authority, and Liberty found clear evidence that the requirements of this Approval Authority were followed in the many fuel commitments authorized and made by LG&E Energy.

9. The Fuels Department has a sound process, embodied in the Award Recommendation Procedure, for analysis of coal bids and approval of coal procurement recommendations.

The Award Recommendation process utilized by the Fuels Department for analysis of coal bids and for authorization of all fuel and fuel transportation procurement is effective and is used consistently. The process is used both for initial contract commitments and also for fuel contract re-opens or re-negotiations if additional dollar or term commitments are involved.

The Award Recommendation process is quite thorough and typically includes a justification for the procurement as compared to forecasts, an analysis of the subject procurement compared to alternatives, an analysis of the capability of the supplier, a notation of any savings achieved through negotiations, and a comparison of the procurement to existing contracts. The last page of the document is the approval page containing space for signatures of all individuals as required by the limits of the Approval Authority.

10. The Corporate Fuels and By-Products Monthly Report regularly provided to senior management is comprehensive, but could be improved to make it more user-friendly. (Recommendation #6)

The Fuels Department regularly produces a comprehensive report for senior management that details the monthly activities of the Department. This report clearly provides management with sufficient information, and probably more information than required by top management. More summary information would be helpful. The report does not contain any graphs to portray important components of fuel management activity such as comparisons of fuel prices, inventory levels, and fuel burns, with targets or forecast information; such visual displays often assist senior management in obtaining value from these types of reports in a more efficient manner.

11. The electronic fuel management system, CSMS, used by the Fuels Department is effective for collection and retention of important fuel management information, but leads to inefficiencies in overall fuel management because of the age-induced limitations of the system. (Recommendation #7)

While CSMS is effective for collection and retention of important fuel management information, and important in providing the necessary fuel accounting information, the system is a handicap to an efficient fuel management process because it is difficult to query for specific information and because of the large volume of reports necessary to obtain information required for normal management of fuel operations. Personnel in the Fuels Department are clearly aware of these limitations, and to their credit have developed a user's group to manage CSMS as effectively as possible. They have also investigated alternative computerized fuel management systems.

D. Recommendations

- 1. Revise and update job descriptions for personnel in the Fuels Department so that they are current and properly reflect the current responsibilities of the position. (Conclusion #2)**

Job descriptions, which describe the details of individual responsibility and qualifications necessary for proper job performance, are necessary to support any organization with complex responsibilities such as fuel procurement and management. Such job descriptions are essential both for the individual performer and for the manager responsible for directing the activities of that position. Written job descriptions provide clear definitions of responsibilities, boundaries, and interfaces, which allow individual performers to know specifically what is and is not expected of them. Proper job descriptions also assist managers lay out the complete spectrum of tasks to be accomplished by the organization involved, in order to ensure that there are no gaps or overlaps in what has to be accomplished. This is especially important where the various segments of the organization tend to operate as silos, as is discussed in Conclusion #3 in this chapter. Current job descriptions are especially important in organizations responsible for huge dollar commitments, such as fuel procurement. Without proper job descriptions, the dynamics of a critical organization, such as the Fuels Department, can produce uncertainty as to responsibilities, or even inaction on critical issues.

- 2. Improve communication within the Fuels Department, and between the Fuels Department and higher levels of management. (Conclusion #3)**

It should be pointed out that the Director of the Department is aware of the deficiencies in communication within the Department and has established objectives for future action to improve this situation.

Improved communication is necessary for a number of reasons. First, good communication between the Fuels Department and higher levels of management is necessary to ensure that the strategies and objectives of management of the corporation are communicated and understood by the department actually responsible for implementing those strategies and objectives. Second, good communication within the Fuels Department is necessary to better optimize fuel procurement strategies between the operations of KU and LG&E. Third, good communication within the Fuels Department is necessary for overall improved efficiency of operation within the

Department so that redundant operations are identified and eliminated and so that improved methods of operation in one area are shared with other areas for the overall benefit of the entire department. Finally, improved communication is important from the perspective of training and personnel development. It is important that there is more than one individual capable of understanding the various complex responsibilities within the Fuels Department, both from the perspective of personnel development, as well as from the perspective of organizational effectiveness in the cases of absences or unexpected departure of personnel.

3. Improve the performance management system within the Fuels Department by adding more quantifiable and measurable goals for individual performance objectives. (Conclusion #4)

The goals and objectives currently found in the performance management system for individuals in the Fuels Department are satisfactory, but lacking in items that relate more directly to improvement in fuel costs, to improvement in efficiency of fuel utilization, or to improvement in the costs of power generation due to better fuel procurement. In utilities where changes in fuel costs are automatically passed through to consumers of electricity through the fuel adjustment clause process (FAC in Kentucky), there must be incentives for individuals to execute the fuel management process as effectively and efficiently as possible. This is accomplished through more specific, quantifiable and measurable objectives that are built into the performance evaluation and appraisal process for these individuals.

4. Revise and update the Fuel Procurement Policies and Procedures to bring more specificity to these procedures, and to add certain procedures that are missing. (Conclusion #6)

It is always challenging to develop procedures for fuel procurement that provide the necessary detail and coverage of important fuel management issues, while at the same time providing sufficient flexibility of management so that the department is not hamstrung by these procedures and is able to quickly adjust to changing fuel market conditions and take advantage of favorable opportunities in the procurement of fuel for power generation.

The following are areas of the current fuel management procedures where changes are necessary:

- The stated objective of the policy must be changed to reflect that the objective of fuel procurement is to obtain fuel of sufficient quality which will provide the lowest possible cost of electrical energy delivered to the bus-bar, consistent with the other qualifiers related to quantity, reliability, environmental limitations, etc.
- The procedures must outline the coal bid evaluation process, including the necessary steps to be taken and include a statement that bids are to be evaluated and contracts awarded on an evaluated cost basis related to those coals that will result in the lowest possible cost of electrical energy delivered to the bus-bar, consistent with the other qualifiers related to supplier reliability, environmental constraints, transportation options, etc.

- The procedures must contain provisions for cross-checks or quality control to ensure the security of coal bid information. The procedures must include provision for functional separation in the bid evaluation process so that any one individual is not responsible for too large a portion of the process from bid opening, to handling of bid data, to entry of bid data onto spreadsheets, to custody of these spreadsheets, to analysis of bid data, to recommendations for procurement based upon this data.
- The procedures must be more specific on inventory levels, and indicate where the inventory targets come from, when they are reviewed, what they are, and whose responsibility it is to maintain these inventory levels. Stating that “coal inventories are monitored regularly via the Company’s Fuel management department” does not provide sufficient guidance beyond the monitoring phase of this important fuel management activity. Someone must be responsible for the action part of this process.
- The procedures must define responsibilities for handling the receipt of coal, weighing of coal, and sampling of coal, and how the results of these fuel management activities end up in the hands of the managers in the Fuels Department who must eventually take action based on these measurements. The procedures should reference the appropriate and more specific fuel handling procedures related to the actual receipt, weighing and sampling of coal.
- The procedures must address emission allowance management, who is responsible, and how the requirements of emission management are factored into the fuel management activities of personnel in the Fuels Department.
- The procedures must describe how the coal supplier/vendor list is maintained. It is important that there is clear understanding on what the requirements are, if any, for getting on this list, and what the requirements are, if any, for staying on this list of potential coal suppliers.
- The procedures related to affiliate transactions must be expanded. Complete discussion of affiliate procedures is contained in Conclusion #7 of this Chapter.
- The procedures should contain page numbers, effective date of each page, and indication of any revisions and revision numbers on each page.

5. Revise the Fuel Procurement and Policies Procedures to expand the detail related to the requirements and prohibitions for dealing with the non-regulated affiliate, WKE, on fuel management matters. (Conclusion #7)

Revisions to the procedures must contain two important elements. First, the procedures must include specific language from all relevant regulations such as, but not limited to, the Kentucky regulations pertaining to affiliate transactions KRS 278.2201-278.2207.

Next, the procedures must include samples of the kinds of communications, exchanges of information and verbal discussions that are both permitted and prohibited when dealing with affiliates on fuel management issues.

6. Enhance the Corporate Fuels and By-Products Monthly Report provided to senior management to make this report more user-friendly. (Conclusion #10)

This report clearly provides management with sufficient information, and probably more information than required by top management. The report should be improved and made more user-friendly for top management by including more visual information. More summary information would be helpful. Incorporation of graphs that portray important components of fuel management activity, such as comparisons of fuel prices, inventory levels, and fuel burns, with targets or forecast information, will enable readers of the report to process the important information more efficiently. An important step in the report improvement process should be to discuss possible report improvements with senior management in order to determine their own preferences for how the report could be more useful to them.

7. Develop a long-term plan for improvement of the Fuels Department’s electronic fuel management system. (Conclusion #11)

Personnel in the Fuels Department are clearly aware of the limitations of the current fuel management system, CSMS. Nevertheless, a long-term plan must be developed to ensure that the CSMS system continues to be useful, is improved when possible, and is eventually replaced when cost/benefit studies demonstrate that this is appropriate.

Steps in the long-term electronic fuel management system plan must include the following:

- Continued regular meetings of the CSMS user’s group, with meeting reports submitted to the Director, Corporate Fuels and By-Products;
- Addition of CSMS action plan items to the performance objectives of key personnel in the Fuels Department;
- Direct assignment of CSMS enhancement/replacement responsibility to the job description, and to the performance management goals and objectives, of a specific individual in the Fuels Department;
- The individual given direct responsibility for development of the plan for enhancement/replacement of CSMS should be a member of the user’s group;
- Establishment of regular, and formal, cost/benefit studies on the replacement of the CSMS system. Such studies must incorporate coordination with those responsible for the LG&E/KU Customer Information System, (and any other users of this system) since both this system and CSMS run on the same platform. Such coordinated studies will ensure that the overall course of action for LG&E/KU properly addresses the cost and the benefit impacts of any system change on all possible LG&E/KU organizations.

II. Fuels Planning

A. Scope

This chapter addresses the following topics:

- Integration with Corporate Plans
- Risk Analysis & Balancing Supply Options
- Supply Planning Flexibility
- Monitoring of Key Assumptions and Plan Implementation

B. Background

1. Integration with Corporate Plans

Liberty's analysis found that the Fuels Department's plans are well integrated with corporate plans. There are two components related to the integration of the Fuels Department's plans with corporate plans. The first is corporate recognition of the importance of fuel procurement in the LG&E Energy Corporate Business Plan.¹ A specific section of this business plan addresses Solid Fuel Strategies. While the details of these strategies are confidential, the elements of the strategies address the following issues:

- The importance of a balanced supply portfolio
- Specification of coal inventory targets at KU and LG&E generating stations
- Consideration of alternate fuel specifications at certain generating stations
- Recognition of the tight supply market for eastern compliance coal
- Evaluations of modified barge unloading systems at several generating stations
- Development of certain coal combustion by-product strategies

The second component related to integrating the Fuels Department's plans with corporate plans is a specific joint planning effort between personnel in the Fuels Department and the Generation Planning Department. Within the Fuels Department, planning is conducted by the Fuels Administrators, the Manager of Regulated Fuels, and the Director of the Department as part of their normal job responsibilities.² A separate planning function does not exist within the Fuels Department, as is found at some utilities.

The planning cycle for fuel procurement starts with the Five Year Burn Forecast (in million BTU's) by Generating Station, and by unit for the particular station.³ This forecast is provided to

¹ Response to Data Request #8.

² Response to Data Request #34, and interview with Mike Dotson by Don Spangenberg on December 4, 2003.

³ Ibid.

the Fuels Department by the Generation Planning Department approximately every July.⁴ This forecast serves a number of purposes, including the corporate budget, and represents the start of the planning cycle for the next calendar year beginning in January.

The BTU forecast received from Generation Planning is converted in to a coal burn forecast, in tons, by the Fuels Department. Then, the Fuels Department adds coal prices to this forecast and sends it back to Generation Planning for another iteration on the original BTU forecast. The BTU forecast generally changes as a result of this addition of coal prices by the Fuels Department. If the changes are significant, a second updated BTU forecast is sent to the Fuels Department by Generation Planning. Again, coal prices are added to the forecast and it is returned again to Generation Planning. The process is a series of different iterations until the changes are not significant.

These multiple iterations on the BTU forecast from Generation Planning provide a close linkage between fuel plans and overall corporate plans. The iterations occur over a several month period in the late summer and early fall of each year. Then, again in January, Generation Planning may issue, as needed, an updated forecast that would give the Fuels Department an opportunity to update any fuel procurement plans, and incorporate the latest corporate plans into the coal RFP process that is initiated in the Spring of every year. Thus, the annual Spring coal RFP process reflects the latest estimates of requirements for each of the generating units on the KU/LG&E system.

Because the BTU forecast is initiated at the corporate level, it includes inputs from all relevant departments, most importantly the Regulated Generation Department for generating unit operating and maintenance schedules, and the Environmental Affairs Department for inputs related to Clean Air Act issues.

An annual review with Power Generation is conducted to determine changes to operating requirements for each generating station. The revised operating constraints are then incorporated into specific coal specifications.

Coal requirements that serve as the basis of the annual RFP process are determined first by comparing the coal burn forecast to coal inventory levels and future inventory targets to determine the overall requirement for coal. From this overall requirement, the current contractual tons, or committed tons, are subtracted to obtain a listing of uncommitted tons for each generating unit. These uncommitted tons form the basis of the coal tonnages that will be included in the RFP process.

Tools used in the planning process are numerous, and include: recent prices from coal bids received by the Fuels Department; the DRI-WFA Fuel Forecast; a recent and one-time Hill and Associates study entitled “Analysis of Coal Markets and Projection of Supply and Transportation Costs Impacting LG&E Energy Services 2004-2024”, dated June 2003; and various

⁴ Interview with Mike Dotson by Don Spangenberg on December 4, 2003.

Departmental Excel spreadsheets.⁵ LG&E Energy subscribes to the DRI service, and specifically hired Hill and Associates to conduct the referenced study.

2. Risk Analysis and Balancing Supply Options

The Fuels Department has incorporated several steps into its fuel planning process to address issues related to risk and the need to balance supply options. One of the fundamental objectives of fuel supply, as stated in the department's objectives, is to maintain diversity of supply.⁶ Diversity is also a component of the corporate business plan where the strategy is to maintain a balanced coal supply portfolio through both supplier diversity and through a mix of contract types.⁷ The diversity of supply is multifaceted and includes, avoiding placing "all supply eggs in one basket", utilizing both up-river and down-river suppliers, establishing diversity in supplier financial condition, and ensuring diversity in transportation modes. Not only has diversity been an objective, but Liberty's analysis found that this diversity has been accomplished.

The Fuels Department has added an even more specific target to its diversity objectives by setting a 2003 objective of diversifying the supply portfolio at the non-scrubbed plants.⁸ This is important because low sulfur compliance coal must be used at these plants, and the market for this coal is rather tight. Thus, while this is a difficult strategy to implement, it is nevertheless important and appropriate to broaden the list of potential suppliers of this type of coal. During 2003, the Department did have some success in accomplishing this objective by procuring compliance coal from Indiana for the first time, and by establishing two new suppliers in Eastern Kentucky. Part of the success of this effort was due to the efforts of the Manager, Field Operations, who is bringing a new perspective to this part of the Department's operations because of his continual presence in the Eastern Kentucky coalfields.⁹

The Fuels Department also addresses risk and balancing of supply options through its overall coal contracting philosophy. This philosophy incorporates a mix of both spot and term coal contracts which vary this mix as necessary to ensure both reliability of long-term supply while at the same time taking advantage of spot market pricing conditions. This philosophy also incorporates a mix of term contract expiration dates so that these dates are overlapping. Overlapping dates tend to levelize market price risk, such that KU and LG&E are not exposed to a market that could be unfavorable if all contracts are expiring at the same time. The contracting philosophies also create a favorable flexibility of supply, in terms of the spot/contract mix, and in terms of the various contract terms and contract expiration dates.

⁵ Response to Data Request #34.

⁶ Project Kickoff Presentation on November 18, 2003.

⁷ Response to Data Request #8.

⁸ Response to Data Request #33.

⁹ Interview with Mike Dotson by Don Spangenberg on December 4, 2003.

Both KU and LG&E utilize multiple transportation modes wherever possible to minimize supply risk and balance its supply options. Also, competition between the different transportation modes provides better pricing on the coal transportation costs.

Finally, the Department is guided in risk management by LG&E Energy's Statement of Trading.¹⁰ This policy serves as a uniform approval process for all energy commodity transactions consummated within LG&E Energy. In accordance with this policy LG&E Energy has established a Risk Management Oversight Committee that reports directly to LG&E Energy's Chief Executive Officer, and is responsible for oversight of all energy commodity activities, including procurement of power generation fuel. The Statement of Trading includes a section that specifically addresses the responsibilities of the Fuels Department related to risk management. Liberty's evaluation of this area found that the responsibilities of the Department as listed in this policy are appropriate, and that the Department is complying with the stated responsibilities.

3. *Supply Planning Flexibility*

Forecast versus actual coal consumption

The coal consumption charts shown below provide a good indication of the planning capability of KU and LG&E and of the ability to respond to changing circumstances. The charts demonstrate several important aspects of the planning process. First, the charts demonstrate that the actual coal burns track the forecast coal burns quite well. No forecasting process is perfect, but these charts demonstrate that KU and LG&E have a good process for predicting how much coal will actually be burned at each of the KU and LG&E generating units.

These charts demonstrate that there is no particular bias in the forecasting process. That is, the coal burn forecast is not consistently either greater, or less, than the actual coal burn. Some utilities will attempt to compensate for forecasting uncertainties and the fear of underestimating coal requirements by generating forecasts that consistently over-predict coal consumption. This has not been the case with KU and LG&E forecasts, where there is reasonable scatter; sometimes the forecasts predict coal consumption that is greater than actual, and sometimes the forecasts predict coal consumption that ends up being less than actual.

The other aspect of forecasting demonstrated by the charts is that KU and LG&E have adequately incorporated outage planning into their forecasts. The charts demonstrate that when there is a significant dip in predicted coal consumption (a predicted outage), the actual coal consumption tracks this dip quite well.

¹⁰ Response to Data Request #60.

**Coal Burned
 Forecast versus Actual**

LG&E Stations

Figure II.1

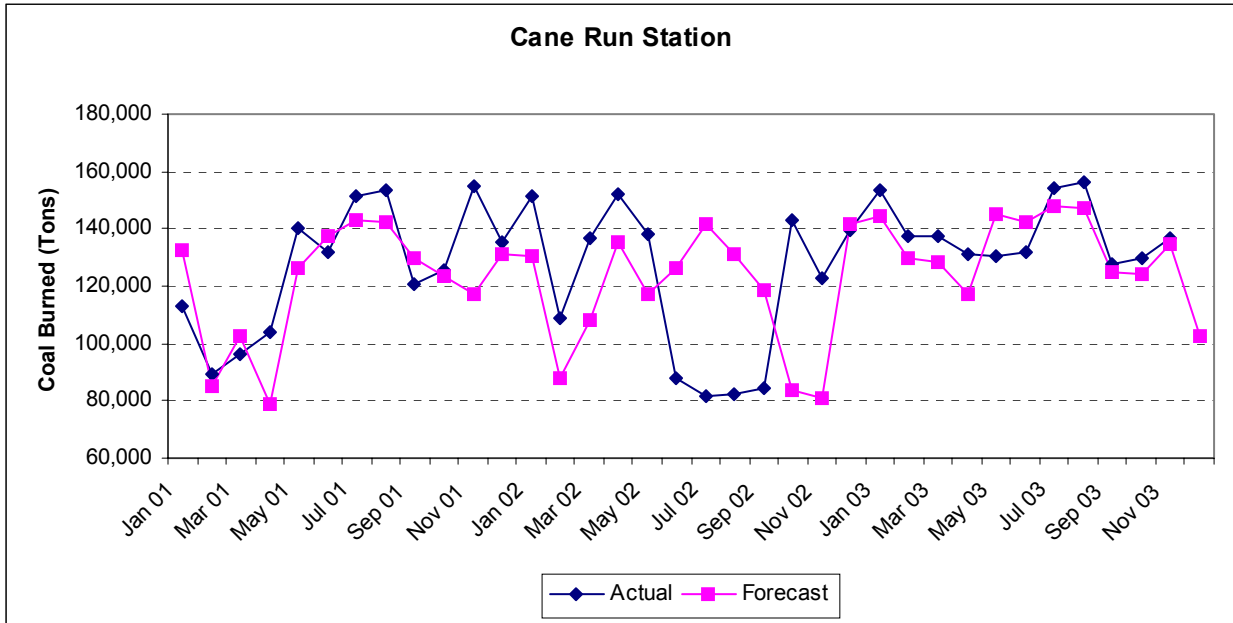


Figure II.2

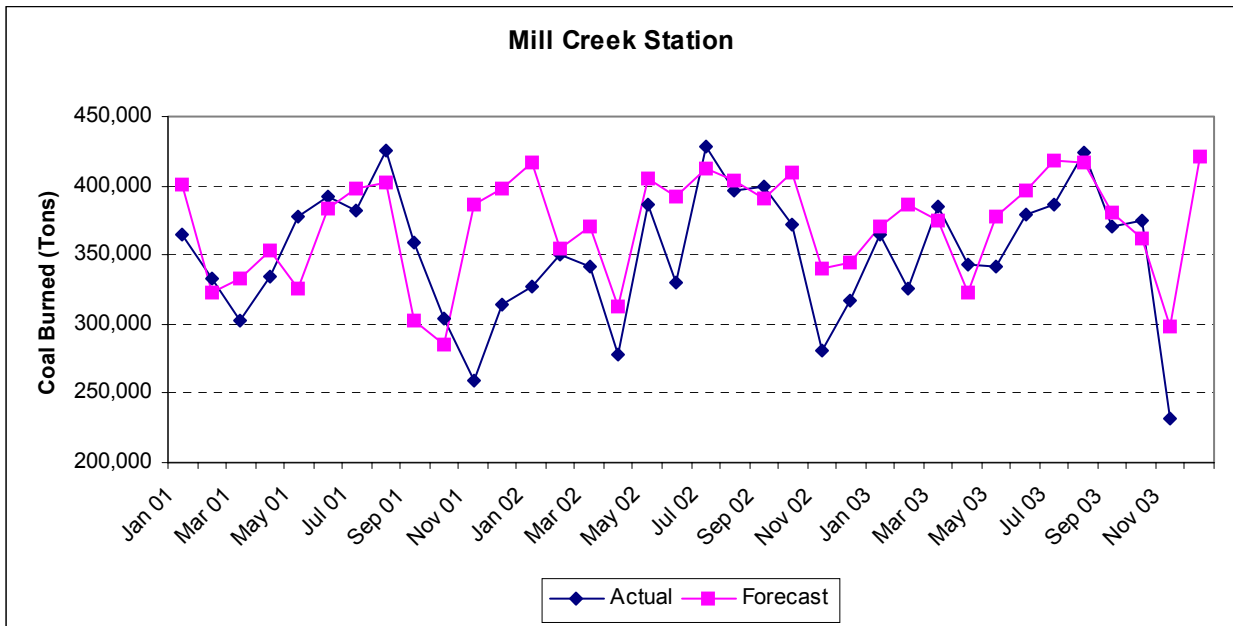
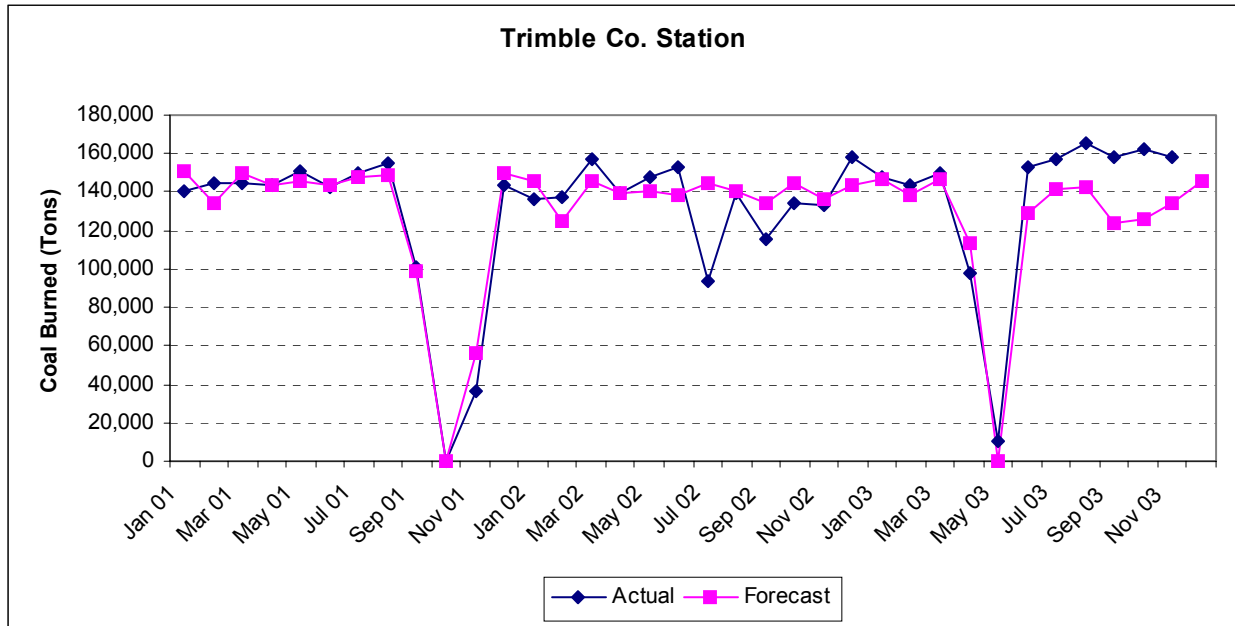


Figure II.3



KU Stations

Figure II.4

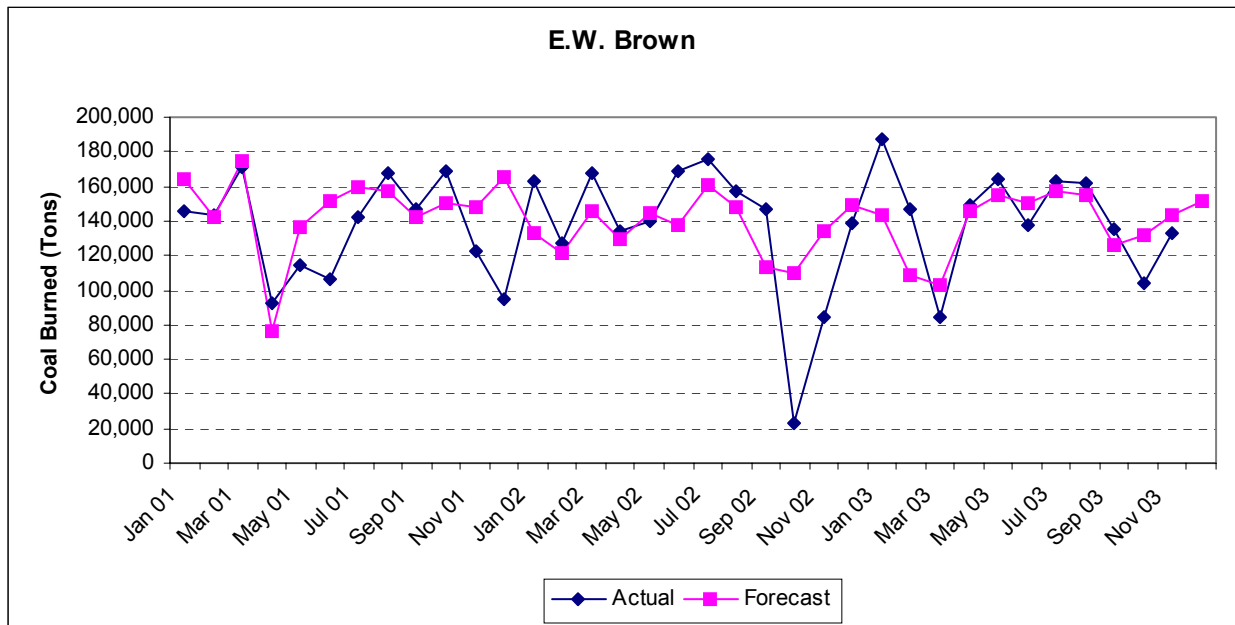


Figure II.5

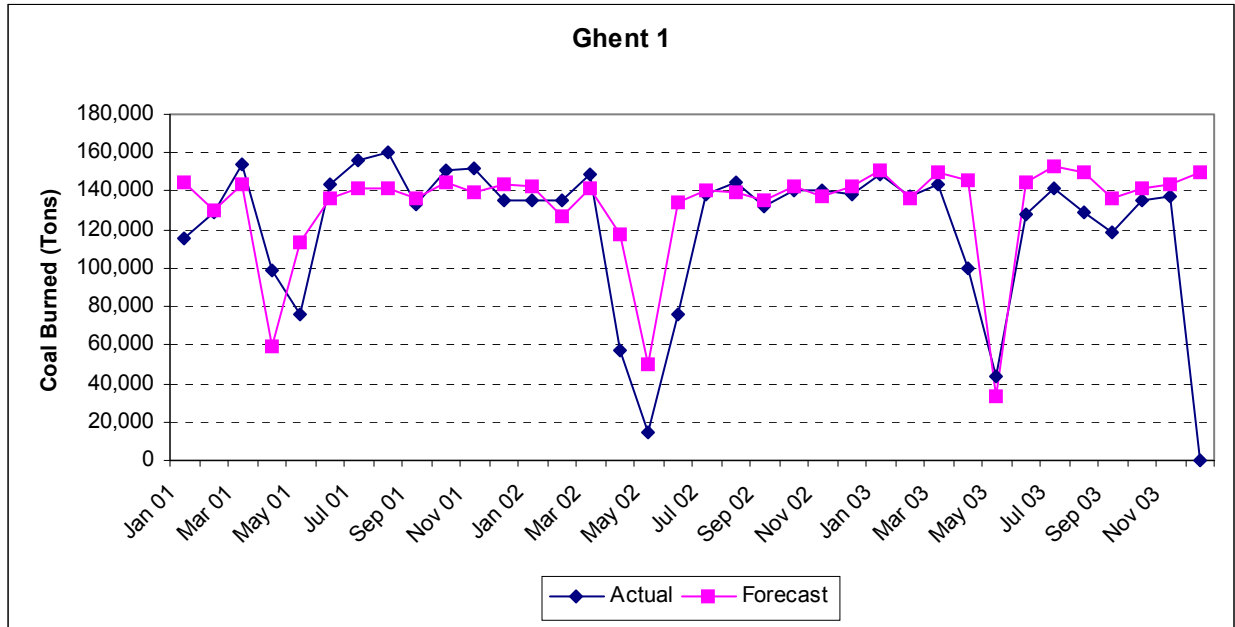


Figure II.6

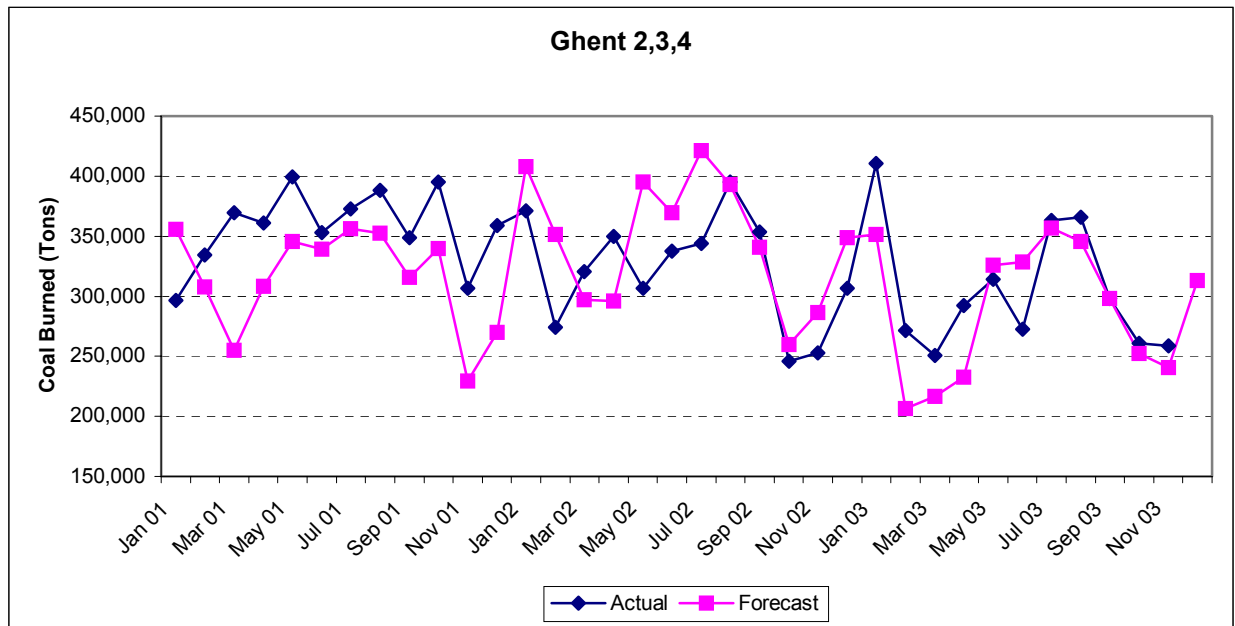


Figure II.7

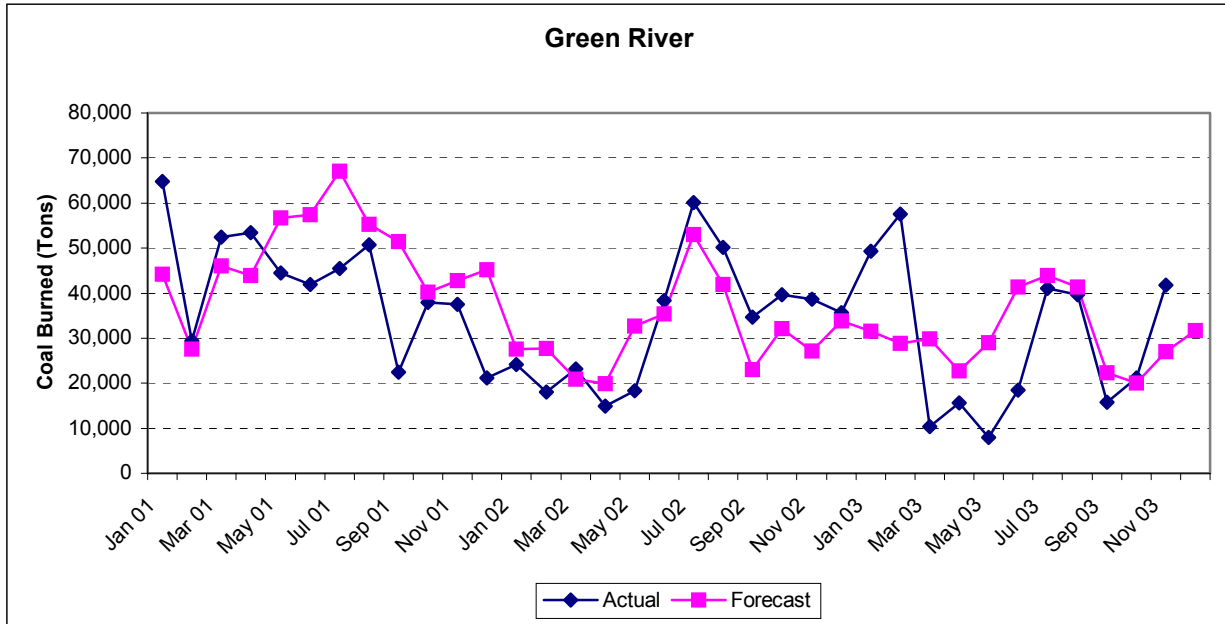
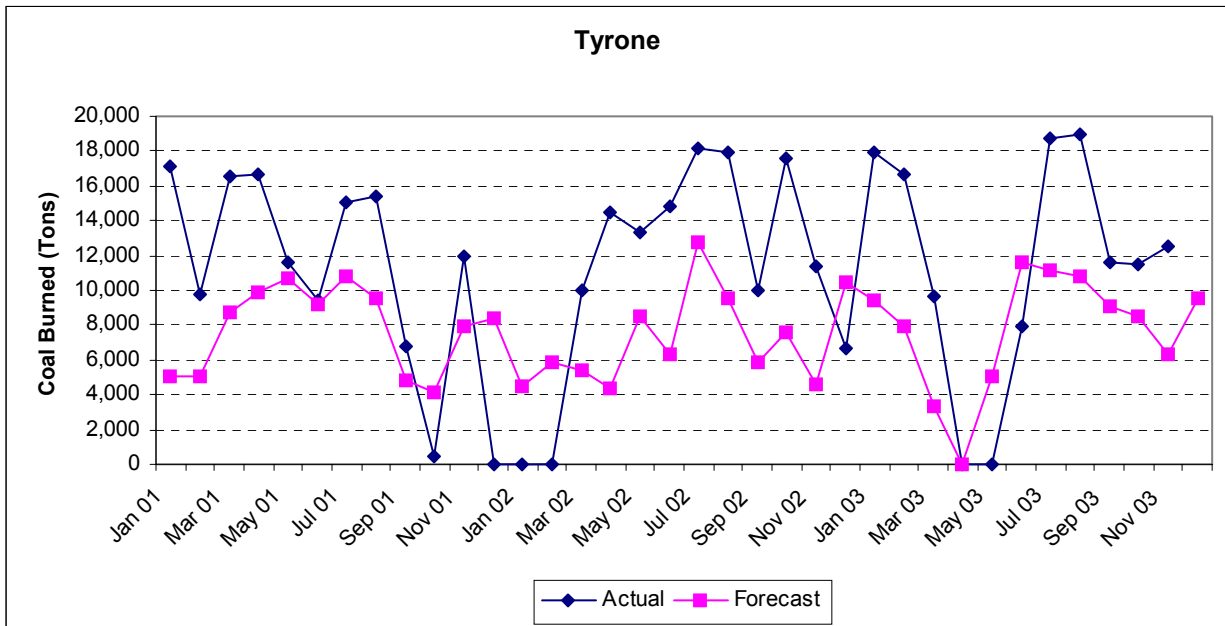


Figure II.8



Consideration of Supply Alternatives

The Fuels Department’s fuel management process also demonstrates flexibility through consideration of supply alternatives that have been incorporated into planning. In its RFP process, the Department advertises that potential coal suppliers should feel free to submit bids for alternative types of coals, along with alternative terms and conditions. Suppliers have responded appropriately, and in many cases, the Department has been provided with opportunities to procure coal synfuels. KU and LG&E engage in the necessary test burns of coal synfuels, and where possible, are using coal synfuels at their generating units.¹¹

Following is a summary of coal synfuel utilization for both KU and LG&E generating stations for the years 2002 and 2003, and demonstrates that the Fuels Department has been effective in utilizing supply alternatives:¹²

Figure II.9 – Coal Synfuel Utilization

		2002		2003	
		Tons	%	Tons	%
LG&E					
	Coal	5,147,830	67	4,888,901	70
	Coal Synfuel	2,508,520	33	2,135,974	30
	Total	7,656,350	100	7,024,875	100
KU					
	Coal	5,187,344	71	5,321,713	74
	Coal Synfuel	2,134,205	29	1,885,540	26
	Total	7,321,549	100	7,207,253	100

Iterative Planning

LG&E Energy also demonstrates its understanding that fuel management is a constantly changing process and that planning must be continual in order to adjust to changing circumstances. At the inter-department level, the flexible nature of LG&E Energy’s planning is evident in the multiple iterations on the BTU forecast that is initiated by Generation Planning, and that is subsequently reviewed and modified by both Generation Planning and the Fuels Department as the planning year unfolds.

Within the Fuels Department, flexible planning is demonstrated through the work of the Fuels Coordinators whose job responsibility includes management of the monthly fuel delivery plans for each of the generating stations.¹³ Annual fuel delivery plans are first established using the key assumption that deliveries from each coal supplier will be leveled on monthly basis

¹¹ On-site examination of procurement records by Don Spangenberg on December 3 & 4, 2003.

¹² E-mail to Don Spangenberg from Mike Dotson on January 6, 2004.

¹³ Interviews with Carol Davis and Sharon Schroeder by Don Spangenberg on December 3, 2003.

throughout the calendar year. Then, each month, coal delivery schedules are adjusted as necessary to incorporate year-to-date activities from both the supplier's and the Fuels Department's perspective. This is an ongoing process each month that adjusts coal deliveries to each generating station as a function of coal supplier schedules, transportation schedules, and generating station needs and unloading capability. The Fuels Department will use the spot solicitation process to obtain short-term coal supplies if this short-term planning indicates requirements that cannot be satisfied through the existing contracts and purchase orders.

Typically, short-term spot coal solicitations take on a very different character between KU and LG&E. Because the LG&E generating units tend to be more base-load type units, their operation is easier to forecast. As the year progresses, the coal consumption forecasts for these units tend to be more accurate, such that there are few needs during the year for spot coal solicitations, other than during the primary solicitation in the Spring of the year.

On the other hand, the KU generating units tend to be dispatched more as cycling units, and thus the coal consumption forecasts are more difficult to predict. Thus, in 2003 for example, in addition to the annual coal solicitation in the Spring, there were three other spot coal solicitations as follows:

- Formal spot solicitation on July 30th for compliance coal;
- Formal spot solicitation on August 26th for a certain type of coal for the Brown and Tyrone Stations;
- Phone/email solicitation in early September for a certain type of coal for the Tyrone Station.

4. Monitoring of Key Assumptions and Plan Implementation

The Fuels Department uses a number of reports generated by CSMS to track the key assumptions built into the fuel planning and delivery forecasts.¹⁴ In addition, the Fuels Administrators and Fuels Coordinators use data from these CSMS reports and their own Excel spreadsheets to manage fuel deliveries from each supplier and to each generating station.

Section 3 of this Chapter details the effectiveness of LG&E Energy in addressing the broader issues of incorporating load projections, and operations and maintenance schedules of generating units into coal burn forecasts. Narrower issues related to the effectiveness of short-term plan implementation (coal delivery schedule implementation) are more difficult to measure. Several indicators can be used to understand short-term plan implementation and include coal demurrage incurred, responsiveness to force majeure situations, and inventory management. Inventory management will be dealt with in Chapter IV, Supply Management.

¹⁴ Interviews with Fuels Department personnel (Gilbert, Dufour, Davis, Schroeder, Dotson) by Don Spangenberg on December 3 & 4, 2003, and response to Data Request #39.

KU and LG&E have incurred minimal coal demurrage within the last two years as evidenced by the following table:¹⁵

Figure II.10 - Annual Demurrage Costs

		2002	2003
LG&E			
	Trimble County	\$38,356	\$8,643
	Mill Creek	\$0	\$15,164
	Total	\$38,356	\$23,807
KU		\$0	\$3,794

The above listed demurrage amounts are not significant in terms of overall coal deliveries. Further, the majority of these amounts can be attributed to either of the newness of demurrage as a part of coal delivery contracts, or physical problems at the generating stations, rather than as a result of any inability on the part of Fuels Coordinators to adequately implement fuel delivery plans. This reflects well on the ability of personnel in the Fuels Department to effectively manage coal delivery schedules on a monthly basis.

In the 2001 through 2003 time period, LG&E experienced two force majeure situations due to operational issues at its Cane Run and Trimble County generating stations.¹⁶ The Fuels Department demonstrated appropriate fuel planning and management expertise by electing not to exercise force majeure suspension of coal deliveries when the coal price was favorable at Cane Run, and when the Trimble County outage did not develop into an outage as long as originally anticipated.

In the 2001 through 2003 time period, KU experienced six force majeure situations. Two were supplier invoked force majeure situations, and four were due to operational issues at KU generating stations. In the case of the two supplier force majeure situations, one was appropriately rejected by KU and all required tons were delivered under the coal contract. Under the second supplier force majeure situations, a supplier bankruptcy situation is at issue and LG&E Energy is currently reviewing its options under bankruptcy. One of the four KU situations was at Pineville Station where the generator suffered extensive damage from an electrical fault, and the station was retired. In the other three KU force majeure situations, favorable pricing caused KU to not invoke force majeure suspension of deliveries in one situation, and to make up force majeure tonnage in another situation. In only one situation did KU lose force majeure tonnage in May and June of 2002 during an unplanned outage at Ghent #1 where 155,804 tons of coal were not delivered under the contract due to this event.¹⁷

¹⁵ E-mail to Don Spangenberg from Mike Dotson on January 6, 2004.

¹⁶ Response to Data Request #22.

¹⁷ Ibid.

C. Conclusions

1. The LG&E Energy Corporate Business Plan appropriately includes a section dealing with strategies related to fuel procurement.

The LG&E Energy Corporate Business Plan recognizes the importance of fuel for power generation and includes a specific section that addresses Solid Fuel Strategies. While the details of these strategies are confidential, the elements of the strategies address the following issues:

- The importance of a balanced supply portfolio.
- Specification of coal inventory targets at KU and LG&E generating stations.
- Consideration of alternate fuel specifications at certain generating stations.
- Recognition of the tight supply market for eastern compliance coal.
- Evaluations of modified barge unloading systems at several generating stations.
- Development of certain coal combustion by-product strategies.

2. The Fuels Department has been effective in the integration of its fuel plans with corporate plans.

Fuel planning is a joint effort between personnel in the Fuels Department and the Generation Planning Department. These departments engage in multiple iterations on the BTU forecast from Generation Planning over a several month period that provide a close linkage between fuel plans and overall corporate plans. The Spring RFP issued by the Fuels Department incorporates the latest BTU forecast from Generation Planning so that this RFP reflects the latest estimates of requirements for each of the generating units on the KU/LG&E system. Because the BTU forecast is initiated at the corporate level, it includes inputs from all relevant departments, most importantly the Regulated Generation Department for generating unit operating and maintenance schedules, and the Environmental Affairs Department for inputs related to Clean Air Act issues.

3. Planning of the Fuels Department is appropriately flexible.

The coal consumption charts in this chapter provide a good indication of the planning capability of LG&E Energy and of the ability to respond to changing circumstances. The charts demonstrate first that the actual coal burns track the forecast coal burns quite well.

These charts also demonstrate that there is no particular bias in the forecasting process. These charts show reasonable scatter such that sometimes the forecasts predict coal consumption that is greater than actual, and sometimes the forecasts predict coal consumption that ends up being less than actual.

Finally, these charts demonstrate that LG&E Energy has adequately incorporated outage planning into its forecasts. When there is a significant dip in predicted coal consumption (a predicted outage), the actual coal consumption tracks this dip quite well.

4. The Fuels Department appropriately analyzes risk and balances supply options.

The Fuels Department has demonstrated effective analysis of risk related to fuel supply and balanced its supply options through the following actions:

- Accomplished the diversity objective of department and corporate plans;
- Accomplished the appropriate mix of both spot and term coal contracts;
- Accomplished the appropriate mix of term contract expiration dates;
- Utilized multiple transportation modes wherever possible;
- Complied with the risk management objectives of the Corporate Statement of Trading.

5. The Fuels Department has been effective in implementing fuel plans.

There are a number of indicators that the Fuels Department has been effective in implementing its fuel procurement plans. First, the Department has minimized coal demurrage through effective schedule management of coal deliveries to its generating stations. Second, the Department has been effective in managing force majeure disruptions to its supply plans and making appropriate adjustments as necessary to take advantage of favorable coal pricing, and enforcement of force majeure to receive the coal to which KU and LG&E are entitled. Finally, the Department has been effective in implementing its fuel plans by using spot market coal solicitations whenever short-term changes in generating unit operation have caused an imbalance in short-term coal supplies for these generating units.

D. Recommendations

None

III. Fuels Acquisition

A. Scope

This chapter addresses the following topics:

- Vendor Certification and Qualification
- Identification of Acquisition Needs
- Solicitations for Coal Supply and Transportation
- Negotiation and Renegotiation of Contracts
- Contract Terms and Conditions
- Fuel Oil and Natural Gas

B. Background

1. *Vendor Certification and Qualification*

The vendor qualification process utilized by the Fuels Department is a post bid qualification process.¹ This means that any potential coal supplier interested in being included on the Department's list of potential coal suppliers can have its name placed on this list and can submit bids in response to any RFPs issued by the Department. Potential suppliers can accomplish this through a phone call, letter or e-mail to the Department, requesting their name be added to this list. The Fuels Department's list of potential coal suppliers is extensive and contains from 170 to 180 potential vendors.²

After bids are received in response to an RFP, they are evaluated to identify a short list of potential suppliers for the subject solicitation. Candidate suppliers on the short list will be interviewed as a first step in determining their ability to deliver the quantity and the quality of coal bid at the offered price. As the process advances to an agreement, further negotiations are held with candidate suppliers, and additional information is evaluated and generally a mine visit will be conducted.

The amount of information that the Department requires potential coal suppliers to submit varies by vendor, and is based on the following factors:

- The volume and term of the agreement (short or long term/large or small volume);
- Past experience LG&E/KU has with the vendor;
- The size and financial stability of the vendor;
- Past experience LG&E/KU has with the coal being offered (seam and region);

¹ Response to Data Request #40.

² Interview with Bill Gilbert by Don Spangenberg on December 2, 2003.

- Previous knowledge LG&E/KU has with the source operation (possibly under a different name).

Typically, at some point in any vendor certification process, the Department will ask for the following information in order to qualify the vendor:³

- Reserve Description
- Mining Plans
- Production Equipment
- Preparation Facilities
- Staffing
- Production Record
- Permit Status

Significant information is required in each of these categories in order for the Fuels Department to be satisfied of the capability of the potential coal supplier to actually deliver coal of the quality and at the quantity proposed. In addition, the Department may request financial data and a Dun and Bradstreet Report on the potential coal supplier will be generated. If all operational data, financial data, and the information gathered through a mine site inspection are acceptable, the vendor will be approved as a finalist on the short list of suppliers for the solicitation in question.

The Fuels Department has shown good judgment by placing a mining engineer on staff. Many electric utilities do not have a mining engineer within the fuel procurement organization. This individual has actual experience in the coal industry in mining engineering positions prior to joining LG&E Energy and so brings considerable valuable experience in the area of evaluation of the mining operations of potential coal suppliers. In this position, this individual spends roughly half of his time in the field inspecting the operations of either potential coal suppliers, or existing coal suppliers, as well as devoting time to working with personnel at each of KU/LG&E's generating stations on matters related to coal handling and management.

In addition to having a mining engineer on the staff, the Fuels Department also has established the position of Manager, Fuels Field Operations within the organization.⁴ This individual has responsibility to spend the majority of his time in the field both inspecting the operations of current and potential coal suppliers, but also seeking to expand the Department's current list of potential coal suppliers. Most importantly, this individual has been successful in this latter responsibility by adding potential suppliers to the vendor list as a result of his field work.⁵ One of the Departments objectives for 2003 has been to increase the diversity of coal suppliers in the compliance fuel area, and the Manager, Fuels Field Operations has been instrumental in assisting with the accomplishment of this objective.⁶

³ Ibid.

⁴ Response to Data Request #14.

⁵ Interview with Mike Dotson by Don Spangenberg on December 16, 2003.

⁶ Response to Data Request #33 and interview with Mike Dotson by Don Spangenberg on December 16, 2003.

By most utility standards, the Fuels Department has an aggressive program for conducting mine site visits of either current or potential coal suppliers. Since January 2001 through the present, Fuels Department representatives have conducted many mine site visits, generally a number of them each month of the year.⁷ For example, in calendar year 2003, Fuels Department representatives conducted 47 mine site visits of existing and potential coal suppliers.

The Fuels Department is constantly trying to increase its list of potential coal suppliers in order to maintain strong competition for the supply of coal to the KU and LG&E generating stations. In addition to the above efforts to maintain a substantial list of coal suppliers, the Fuels Department always takes another step in conjunction with the issuance of each RFP for the procurement of additional coal suppliers. When an RFP for additional coal supplies is to be issued to the coal market, the Fuels Department notifies each of the major coal periodical publications, coal journal and coal association newsletters so that a notice of the solicitation can be publicized to the coal market.⁸

2. *Identification of Acquisition Needs*

The Fuels Department has a strong link between the fuel planning process and the commencement of solicitations for actual coal suppliers, as discussed in considerable detail in Chapter II, Fuels Planning. In summary, fuel planning is a joint effort between personnel in the Fuels Department and the Generation Planning Department. These departments engage in multiple iterations on the BTU forecast from Generation Planning over a several month period that provide a close linkage between fuel plans and overall corporate plans. The Spring RFP issued by the Fuels Department incorporates the latest BTU forecast from Generation Planning so that this RFP reflects the latest estimates of requirements for each of the generating units in the KU/LG&E system. Because the BTU forecast is initiated at the corporate level, it includes inputs from all relevant departments, most importantly the Regulated Generation Department for generating unit operating and maintenance schedules, and the Environmental Affairs Department for inputs related to Clean Air Act issues.

On a regular basis for each month of the year, the Fuels Department continues to monitor its acquisition needs by comparison of fuel deliveries for the year to date with original fuel delivery schedules, generating station operating information, and station fuel inventories. This is accomplished through spreadsheets maintained by both the Fuels Coordinators and the Fuels Administrators. Inventory management is an important component of identification of acquisition needs, and is discussed in detail in Chapter IV of this report, Supply Management. The relevant point for this Section of the current Chapter is that identification of acquisition needs is a monthly process and that the Fuels Department will often identify additional acquisition needs beyond those contained in the Spring RFP process as the year progresses. This

⁷ Response to Data Request #42.

⁸ Interview with Mike Dotson by Don Spangenberg on December 17, 2003.

tends to occur more frequently for KU generating units than it does for the LG&E units because of the different operating characteristics of these units.

All of the KU and LG&E generating stations are dispatched in an order that is determined by which stations (or units) provide the most economical electrical energy to customers. The most economical units are dispatched first, and the most expensive units are dispatched last. Thus, in periods of low demand for electrical energy by the overall system, the most economical units will be running to provide the necessary electrical energy, and the more expensive units will probably not be providing electrical energy to the system. As the need of the system for more electrical energy increases, more and more of the expensive generating units will be brought on line to supply the needed electrical energy. Those generating units that are most economical and run the majority of time are referred to as base-load units. Those units that are more expensive and operate less frequently are referred to as load following units, since they are brought on line as necessary to follow load. Because the LG&E units have scrubbers to control emissions of SO₂, they can burn less expensive high sulfur coal, as a result are more economical to operate, and are thus referred to as base load units. Because most of the KU units do not have scrubbers, they must burn more expensive low sulfur compliance coal, as a result are more expensive to operate, and are thus referred to as load following units.

Because of these operational economics, the LG&E units tend to operate more in the base load mode and thus have more stable and predictable coal requirements. Because the KU units tend to be more expensive to operate and follow load more frequently, their coal requirements are more difficult to predict.

For example during the year 2003, it was not necessary to issue a spot coal solicitation for any of the LG&E units, but spot coal solicitations for the KU units were necessary as indicated by issuance of the following three spot solicitations:

- Formal spot solicitation on July 30th for compliance coal;
- Formal spot solicitation on August 26th for coal for the Brown and Tyrone Stations;
- Phone/e-mail solicitation in early September for coal for the Tyrone Station.

3. Solicitations for Coal Supply and Transportation

Solicitation Procedures

The basic guidelines for solicitation of coal supplies are found in the Fuel Procurement Policies and Procedures.⁹ A specific section of these procedures addresses solicitations of both the formal and the informal variety. Normally, the Fuels Department procures its fuel through sealed bid solicitations. However, under certain circumstances the Department will either request or accept informal bids for fuel purchases as described in these procedures, when it is felt

⁹ Response to Data Request #9.

that market conditions or plant conditions provide an opportunity to obtain fuel more advantageously (or more quickly, if the need arises) than through the formal sealed bid process. These procedures require that when the formal solicitation process is foregone in favor of the informal bid process, then documentation shall be attached to the resulting purchase order file describing the conditions that necessitated the informal process.

The Fuels Department typically issues two main solicitations for coal in the Spring of each year, one for KU generating units, and one for LG&E generating units. The reason for the dual solicitations lies in the different characteristics of the coals for the units on each system, and because a dual process provides a more orderly process within the Fuels Department for issuance of the RFP, receipt and evaluation of bids. There is some logic to this process, but since there are some coal suppliers that are common suppliers to both KU and LG&E, the dual process could eliminate the opportunity to achieve any economies of scale that might be inherent in having one supplier provide coal to both utilities. For example, in mid 2003, there were four coal suppliers having coal contracts with either KU or LG&E for supply of coal to both KU and LG&E generating stations, Black Beauty Coal Company, Consol, PC Kentucky Synthetic Fuel #3, LLC, and Smoky Mountain Coal Corporation.¹⁰ Unless the Fuels Department specifically asks coal suppliers, who have the capability to respond to both solicitations, for pricing discounts related to provision of more coal to multiple destinations, then the Fuels Department might be passing up the opportunity to obtain such pricing discounts.

The formal solicitation process starts with assignment of a Request for Quotation (RFQ) number to each solicitation package before it is sent from the Fuels Department. The RFQ package contains instructions for bidders on procedures for submission of their bids. Bids are returned to the Fuels Department, with the requirement that the RFQ number must be on the address label. This identifies the bid and ensures that it is opened according to the Department's procedures.

The RFQ packages contain the following minimum information:

- Instructions to supplier on submission of RFQ
- Scope of the supply agreement
- Listing of typical information required from the supplier, to include:
 - Quantity and quality of coal being offered
 - Cost structure
 - Length of purchase
 - Transportation capabilities
 - Mining capabilities
 - Other information as required by the RFQ
- KU/LG&E terms and conditions

These packages also urge potential coal suppliers to provide optional offerings in terms of different qualities of coal, coal bundled with emission allowances, or different pricing structures.

¹⁰ Response to Data Request #2.

This reflects the Fuels Department's efforts to obtain the optimum supply of coal at the best possible price.

RFQs received in response to the solicitation are kept together in the Fuels Department until time of the official bid opening. They are not kept under lock and key. Shortly after the deadline for receipt of bids, the formal bid opening process is held. The bid opening process is not public, and is generally conducted by at least two representatives from the Fuels Department and a representative from another department in LG&E Energy. The Director of the Department does not attend these bid openings. Bids are logged onto a formal bid receipt sheet, and this sheet is signed by those present at the opening. Each bid is assigned a number for future reference in the analysis process, and original bids are retained by the Fuels Department.

Only sealed bids received before the established due date and time will be opened, according to procedure. The procedures specify that bids received after the designated time will be returned unopened to the bidder, unless the Director of the Department waives this provision. Interviews with personnel in the Department indicated that late bids are generally opened, with a notation on them of their late arrival.¹¹ Liberty found no indication, however, that there was any impropriety associated with receipt or analysis of these late bids.

Solicitation procedures require that all bidders be given the same opportunity and time frames to respond, and any bid clarification information shall be shared with all potential coal suppliers. Quotation packages containing the original of the suppliers' bid along with bid opening witness signatures are maintained with the Fuels Department. Liberty's examination of this information found it to be in order.

Information from the original bids is entered into a spreadsheet program by one of the two Fuels Administrators. These spreadsheets become the primary analysis tool for determination of the winning bidders. Later in the process, the Manager of regulated fuel procurement cross-checks the information on the spreadsheet to ensure that the data from the original bids has been properly entered into these spreadsheets.¹²

Transportation

In addition to entering bid information for coal supply onto these spreadsheets, the Fuels Administrators also add transportation price information to the spreadsheet in order to arrive at a cost of coal delivered to the appropriate power plant. Currently, the Fuels Department has contracts in place for both rail and barge movements to its generating stations. All coal delivered by truck is procured from the coal suppliers on a delivered cost basis, with the coal suppliers including truck transportation in their bids. The philosophy behind this practice is sound, since the coal suppliers have much more expertise in the truck market than the Fuels Department.

¹¹ Interview with Steve Dufour by Don Spangenberg on December 2, 2003.

¹² Interview with Mike Dotson by Don Spangenberg on December 4, 2003.

Transportation prices are an important component of the bid evaluation process since some of the KU/LG&E generating stations are capable of receiving coal by more than one mode of transportation. Following is a listing of the transportation modes available to each of the LG&E and KU generating stations:¹³

Figure III.1 - Available Transportation Modes

LG&E Stations	Transportation Mode
Cane Run	Rail
Mill Creek	Barge and Rail
Trimble County	Barge
KU Stations	
E.W. Brown	Rail and Truck
Ghent	Barge
Green River	Truck
Tyrone	Truck

When the Fuels Department decides it needs a contract for transportation of coal by rail or barge, it follows an RFQ process similar to the one described for coal procurement. Currently, the Department has a long-term rail contract for transportation of coal to the E.W. Brown Station. Ninety-nine percent of deliveries to E.W. Brown are by rail, with the balance being by truck. The E.W. Brown rail contract is in its 9th amendment, with each amendment extending the contract for 3 years. It is a joint NS/CSX transportation contract, was last negotiated in 2002 and extends through December 31, 2005. The Norfolk Southern is the delivering carrier.¹⁴

The Fuels Department has two rail contracts for transportation of coal to the LG&E stations of Cane Run and Mill Creek. One contract is with the Norfolk Southern for delivery to Cane Run for coal out of Southern Indiana. This is a three-year contract that matches the term of the coal contract with Kindill Mining, Inc. and runs from 2002 through 2005. It is the Department's strategy to always have its transportation contracts match the term of its coal contracts. This is a sound strategy and avoids having the Department find itself in an unfavorable competitive position with a contract for which either coal or transportation has to be procured on a short term basis.¹⁵

The second rail contract for LG&E is a Paducah and Louisville Railway agreement for deliveries to Cane Run and Mill Creek Stations. The contract expired in December 2003, and has been replaced by a new contract approved by LG&E Energy management for an extension through

¹³ Response to Data Request #36.

¹⁴ Interview with Steve Dufour by Don Spangenberg on December 2, 2003.

¹⁵ Telephone conversation between Mike Dotson and Don Spangenberg on January 8, 2004.

2005. Again as with other contracts, this contract coincides with the term of the Alliance coal contract.¹⁶

All coal deliveries to both KU and LG&E stations are covered by a master barge contract with Crouse. This contract was negotiated two years ago after a market solicitation for these services in a process that patterned solicitations for coal. Prior to this time, KU and LG&E had their own barge contracts. The current contract with Crouse is for all barging services to Ghent, Mill Creek and Trimble County Stations, and runs through December 31, 2007. The contract contains a re-opener provision that must be exercised by October of 2004; either party can exercise the re-opener. If the re-opener is not exercised, the contract will run normally through the end of 2007.¹⁷

KU owns 150 rail cars that are used in transportation of coal to the E.W. Brown Station, and these cars are utilized 100% of the time for this service. These are steel, manually operated bottom dump cars that are divided into two sets of about 75 cars each. For all of other transportation of coal by rail to KU facilities, the Fuels Department uses railroad owned cars.¹⁸

LG&E uses three sets of rail cars. Two sets of cars of about 77 cars per set are owned, with one set being steel and one set being aluminum. The third set of rail cars is leased and is comprised of about 110 steel cars. All cars are rapid discharge bottom dump cars.¹⁹

The Fuels Administrators in the Fuels Department are responsible for managing the maintenance on this fleet of rail cars.²⁰

Wherever possible, the Fuels Department tries to take advantage of the diversity advantage of having two different transportation modes at a generating station. This is accomplished through the competitive processes of letting it be known to both coal suppliers and transportation vendors alike that comparative prices are being obtained for coal deliveries to the Mill Creek, Cane Run and E. W. Brown stations. In addition, at Cane Run, LG&E Energy launched a barge study, and spent some money on this effort. The result was that more favorable rail rates were obtained, even though the barge project has not been completed.²¹ The Commission's Management Audit Branch was thoroughly advised about this barge project.

Also at Cane Run, two different rail lines serve the station – the Norfolk Southern and the Paducah and Louisville railroads.²² Therefore, the Fuels Department uses this situation to competitive advantage by pitting each railroad against the other in the transportation procurement process along with pitting coal suppliers against each other.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Interview with Steve Dufour by Don Spangenberg on December 2, 2003.

¹⁹ Interview with Bill Gilbert by Don Spangenberg on December 2, 2003.

²⁰ Ibid.

²¹ Interview with Bill Gilbert by Don Spangenberg on December 2, 2003.

²² Ibid.

Mindful of the importance of transportation flexibility to favorable economics of fuel delivery, LG&E Energy has addressed this in its corporate business plan for 2003 and included several specific coal transportation related objectives.²³ While confidential in nature, these objectives relate to improving coal transportation flexibility at the Ghent, Trimble County and Cane Run Stations.

Bid Evaluations

All bids received in response to the solicitation are ranked according to those bids that can provide the lowest delivered cost of coal to the appropriate power plant. No other economic factors are quantified in this bid evaluation process to adjust the bids to recognize that different coals will have different impacts on the power generation process and eventually could result in having quite different impacts on the final cost to produce electrical energy from these different coals. Said another way, coals having the same delivered cost could easily result in electrical energy from each of these coals having very different costs for this energy, as delivered to the bus-bar of the generating station. This is due to different quality characteristics of these coals and the resulting different impacts on coal handling operations, coal grinding operations, boiler operations, emission allowances, ash handling and disposal and scrubber operation and sludge disposal costs.

LG&E Energy looks at the impact on bus-bar costs in only a subjective way when the plant operating constraints are reviewed and revised annually. These operating constraints are then reflected in the specific coal constraints for each generating station. However, LG&E Energy does not quantify this impact on bus-bar costs.

Liberty's auditing experience over the last 15 years has found that electric utilities normally use a coal bid evaluation tool as part of the bid evaluation process in order to adjust the delivered price of coal for all of the above mentioned impacts and arrive at what is generally referred to as the "evaluated cost of coal". This "evaluated cost of coal" then re-ranks the coal bids on the basis of which coals will result in the production of the lowest cost electrical energy. These evaluation tools are generally available in the marketplace, having been developed and tested through many years of utility use, and have been called CQIM (Coal Quality Impact Model), and now VISTA, the latest evolution of CQIM. CQIM was a commercially available model originally constructed through a cooperative effort of the Electric Power Research Institute (EPRI) and Black and Veatch. VISTA is also a commercially available model that was similarly developed by EPRI and Black and Veatch, but it is interesting to note that the VISTA agent for the UK, Europe and Africa is Powergen, of which LG&E/KU is an affiliate.²⁴ Some utilities do not use commercially available evaluation models, but have constructed their own models that run quite effectively on spreadsheets.

²³ Response to Data Request #8.

²⁴ <http://www.powertech.co.uk/vista/description1.htm>

Typically, these coal evaluation models adjust the delivered price of coal to account for variations in ash content, and for variations in sulfur content of the coal. Ash content adjustments are necessary to account for the different power plant operation and maintenance costs to grind coal of differing ash contents, to handle coals of different ash contents in the boilers, and to dispose of different quantities of ash. Adjustments for sulfur content are necessary to account for the different power plant operation and maintenance costs from scrubber operation and scrubber sludge disposal, as well as emission allowance costs.

The VISTA model does much more than merely adjust prices for ash and sulfur content of coals. It is an all encompassing evaluation package that optimizes fuel purchasing by analyzing current supplies and alternative fuel options, including costs such as coal purchase, transport, maintenance and auxiliary power requirements. The model is unit specific and is calibrated from unit specific performance data. VISTA's comprehensive outputs include any predicted derates, total cost of power generation for each of the fuel scenarios, changes in emissions, fuel burn rates, availability and boiler efficiency. The Fuels Department's current processes for fuel procurement and management do not provide these types of detailed, quantified, fuel-related assessments.

Neither KU nor LG&E have successfully used coal evaluation models in the past. Representatives from the Fuels Department were asked why such coal evaluation models are not currently used. The explanation was that some effort was made several years ago to use a model such as CQIM, but that management of the Fuels Department did not believe sufficient cost information, related to the operational and maintenance impacts of coals of different qualities, could be obtained from the Regulated Generation Department. The then current version of CQIM used an operations and maintenance cost module based on data from TVA, and this was not considered adequate for the Fuels Department's use.²⁵ The other reason given for not using the model was that KU and LG&E costs of coal, and delivered electrical energy are among the lowest in the nation.²⁶ Representatives of both the Fuels Department and the Regulated Generation Department feel that the current specifications established for coal quality take into account the necessary operational costs; however there has been no quantification of this process.

Several representatives from the Fuels Department did indicate that there are plans to implement use of VISTA in the near future, and that a member of the Generation Services Department is currently working on obtaining the necessary plant cost information to input into the model. At one point, the Director of the Fuels Department hoped that KU and LG&E would have the model in operation by December 31, 2003.²⁷ Now, the Director hopes to have the model in operation sometime during 2004, but no official targets or Department objectives have been established by either department management or by senior management of LG&E Energy.²⁸

²⁵ Interviews with multiple representatives of the Fuels Department (Gilbert, Dufour, Davis, Schroeder, Dotson) by Don Spangenberg on December 2, 3, 4, and 16, 2003.

²⁶ Ibid, plus interviews with personnel at Ghent Station on December 15, 2003.

²⁷ Interview with Caryl Pfeiffer by Don Spangenberg on December 2, 2003.

²⁸ Interview with Caryl Pfeiffer by Don Spangenberg on December 2, 2003 and of Martyn Gallus by Don Spangenberg on December 17, 2003.

Various individuals interviewed by Liberty did feel that the Utilities appropriately accounted for the different impacts of coal quality on plant operations and maintenance costs through the regular discussions held between members of the Fuels Department and the Production Department. Operating experience has provided guidance to KU and LG&E personnel as to which coals work best, which coals are difficult to handle, and which coals subsequently result in higher, or lower, costs of operations. KU and LG&E personnel also believe that the coal is procured in accordance with the coal specifications for the boilers, and that this appropriately accounts for the varying impacts of coal quality on operations and maintenance costs. However, everyone agreed that these discussions, and these operating experiences, were more qualitative in nature, without any specific quantification of actual cost impacts on either operations or maintenance, or the cost of delivered electrical energy.²⁹ Because the Fuels Department does not use any tool for quantification of the actual costs of production of electrical energy, as related to using a variety of coals, neither those responsible for fuel procurement, nor those responsible for operation of the plant, are able to consistently fine tune decision-making with consistent objective measurements.

Coal Contracts

All legitimate bids received by the Fuels Department are evaluated based on the above described delivered cost evaluation, plus other factors necessary to satisfy operational constraints, environmental constraints, and supplier capability. From this ranking, the Department will create a short list of potential coal suppliers from which the Department intends to conduct further discussions and negotiations. The short list may include unsolicited offers. The size of the short list is usually three or four vendors, but will be determined solely at the discretion of the Fuels Department. It is at this point that the Department Manager, or his designee, may engage in discussions with vendors on the short list to determine which warrant further consideration.

The objective of the negotiations is to reach agreements with suppliers that provide KU/LG&E with favorable terms, the lowest delivered cost of coal, and reliable supply. Teams may be formed to conduct these negotiations, with representatives from the legal department being on these teams. The terms and conditions outlined in the RFQ serve as the basis for these negotiations with each potential coal supplier.

When a supplier, (or suppliers), is selected, then the Fuels Administrator will prepare an Award Recommendation Letter for the procurement. The purpose of this letter is to document the evaluation process, justify the evaluation, and obtain the necessary management approval for the procurement. The letter will contain a number of sections, including a comparison of the recommended procurement with the latest coal forecast, a description of the recommended company and its mining operation and why the operation is acceptable, a price comparison with current contracts, a listing of savings achieved through negotiations as compared to the original bid price and budget numbers as well. The letter also contains a listing of management positions

²⁹ Ibid, plus interviews with personnel at Ghent Station on 12/15/03.

that must approve the procurement, dependent upon the magnitude of the procurement and the requirements of the Approval Authority Matrix from the fuel procedures. Coal bid evaluation sheets are also attached to the letter. Liberty found that this process was quite effective, was consistently carried out, and appropriately approved by management.³⁰

Spot Purchases

The Fuels Department monitors its coal supply balance on a continuous basis and will enter the spot coal market when additional coal supplies are required that are not covered by the existing contracts. This generally occurs with coal supply for the KU generating units because they are more expensive on a dispatch basis, thus run in a more cyclical manner, and thus have coal consumption that is more difficult to predict. Spot procurement is usually conducted in a formal manner similar to the process described above for contract coal. However, spot procurement can also be conducted more informally by phone or e-mail if the situation warrants more prompt action. The decisions for less formal spot procurement are made by the Director of the Department based on operating requirements, inventory levels, conditions at the power plants, all ultimately for the purpose of achieving efficiencies and cost-effectiveness under the current circumstances.

Documentation

The Fuel Procurement Policies and Procedures are quite specific as to what documentation related to fuel procurement decisions should be retained. This list includes the following:

- The final list of candidates
- A copy of the bid package
- The bidder's responses with witness signatures
- The bid evaluation summary

Current records are maintained in the Fuels Department, and older records are maintained for seven years, according to corporate policy. LG&E Energy has made provision for off-site storage of this information. Liberty's examination of this documentation confirms adherence to corporate policy.

Corporate Objectives and Coal Procurement

The LG&E 2003 Corporate Business Plan includes an initiative to "Consider alternate fuel specs for plants supplying off-system sales in order to improve marketability and profitability of

³⁰ Interviews with Fuels Department personnel (Gilbert, Dufour, Davis, Schroeder, Dotson) on December 2, 3, and 4, 2003 and on-site examination of procurement records on December 4 and 5, 2003.

electricity from those plants.”³¹ This initiative appropriately recognizes that changes in fuel specifications can have an impact on the cost of electrical energy. However the focus of this initiative is not completely balanced because it appears that LG&E Energy is making special efforts related to the non-regulated portion of its business (off-system sales from the KU and LG&E generating units), and not making similar efforts for the regulated portion of its business (sales to native load customers from the KU and LG&E generating units). Said another way, the initiative appears to focus on the importance of corporate profitability, instead of providing focus on lowering costs to ratepayers.

Those responsible for this corporate objective believe that the Utilities’ ratepayers are not being slighted by addition of this new objective, since the corporate focus is always to provide the lowest possible cost electrical energy to ratepayers.³² Whatever the generated cost of electrical energy is at any given moment, KU’s and LG&E’s native load customers receive the lowest cost electrical energy due to the lowest cost generating units in the fleet being dispatched first to meet their needs. The Commission requires that off-system sales of electrical energy may only occur after native load customer demand has been satisfied. Thus, at any given time, only the relatively higher cost electrical energy available from higher cost generating units can be sold off-system.

There is also another way in which ratepayers benefit from off-system sales. In a rate case, off-system sales profit is applied to and thus lowers the regulated utility’s revenue requirement. When base rates are set, there is an implicit amount of off-system sales profit built into those rates. At a minimum, ratepayers receive this benefit until another rate case is filed and the Commission establishes new base rates. Also, at the present time, both KU and LG&E operate under an Earning Sharing Mechanism (ESM). As long as the ESM is in effect, it is possible that ratepayers may benefit from off-system sales profits in two ways. If the Utilities are in an overearning situation, 40% of the calculated overearnings are returned to ratepayers in a given year. Similarly, in an underearning situation, 40% of the calculated revenue shortfall is collected from ratepayers. In the former situation, higher off-system sales profits increase the amount of overearnings. In the latter situation, higher off-system sales profits will lessen the Utilities’ underearnings. If the Utilities’ earnings levels are within their ESM deadband, ratepayers will not share in any additional off-system sales profits beyond that level built into base rates.

Even though the Commission examines and approves the Utilities’ FAC filings, Liberty is still concerned that the corporate objective appears too narrowly focused in favor of corporate profitability. Liberty believes that if it is necessary to introduce a change in strategy, with a new corporate objective of improving corporate marketability and profitability, especially through off-system sales, it should also be necessary to introduce a similar objective focusing on lowering costs to captive ratepayers. It is notable that both KU and LG&E have filed a rate case with the Commission and are in the process of seeking higher base rates. A strategic corporate objective focusing on increasing corporate marketability and profitability will necessarily focus

³¹ Response to Data Request #8.

³² Interview with Martyn Gallus by Don Spangenberg on December 17, 2003.

the corporation on increasing shareholder value first and foremost. A more balanced objective would be to focus on generating the lowest possible cost electrical energy across the Utilities' fleet of generating units for the benefit of ratepayers, which by extension, implies the lowest possible cost energy available to be dispatched to off-system sales customers.

Liberty also feels that the existence of this new corporate objective underscores the importance of developing tools within the Fuels Department to effectively quantify the cost impacts of varying coal quality. On the one hand, the subject corporate strategy acknowledges the impact of coal quality on the cost of delivered electrical energy. Yet, on the other hand, the Fuels Department does not possess all the tools that are needed to conduct the evaluations necessary to properly evaluate these coal quality impacts on electrical power costs, nor has it established any targets or goals for having the necessary evaluation tools in place.

4. Negotiation and Renegotiation of Contracts

Negotiations

The Fuels Department uses a process of negotiation with a short list of potential coal suppliers to arrive at contracts for delivery of coal to its generating stations. This is an effective process that is guided by both formal written procedures for this activity as well as by a custom of operation in the Department. Because of the Department's ability in this area, it has generally been able to achieve favorable terms and conditions for its coal contracts, and to arrive at delivered coal prices that are typically lower than the original prices proposed by the coal suppliers in their bids. Lower prices are not achieved on all contract negotiations, but in the majority of instances lower prices have been achieved.³³

Renegotiations

Coal contracts can be renegotiated for any number of reasons, including provisions within the original contracts for renegotiation based on certain criteria, as well as either supplier or buyer requested renegotiations. Overall, the Fuels Department has been effective in these renegotiation processes and concluded them with terms and conditions and pricing that are generally as favorable as the original contract, if not more so. The majority of the contract renegotiations since 2001 have been as a result of contract reopener provisions.³⁴

Prior to entering into contract reopeners, the Fuels Department uses its regular coal solicitation process to obtain market pricing information that can then be used in the renegotiation process. Typically, after a renegotiation, a contract amendment is executed. Such contract amendments follow the same Award Recommendation Letter process as described above, unless the renegotiation has not changed any tonnage commitments or changed the dollar magnitude of the

³³ On-site examination of procurement records by Don Spangenberg on December 3, 4, and 16, 2003.

³⁴ Response to Data Request #25.

contract. Liberty's examination of these records found that indeed this process is appropriately followed.³⁵

Sometimes the Fuels Department will initiate a contract renegotiation process, as was the case with Peabody Coal Company in the 2002 –2003 time period. Because of higher than anticipated coal inventories, LG&E approached Peabody requesting a deferral of tonnage from 2002 into 2003. Peabody agreed to this deferral at the same price for the coal and a contract amendment for this movement of tonnage into 2003 was executed. A similar contract amendment was executed with Charolais Coal Sales in this same time period in order to address high LG&E coal inventories. The Charolais amendment deferred tonnage into 2003 at the same price for coal.³⁶

Generally, contract renegotiations with coal suppliers result in continuation of the existing contract through an amendment because the Fuels Department is able to achieve its objectives with respect to term, tonnages and favorable pricing. On occasion, this does not occur, demonstrating that the Fuels Department will not agree to new terms and conditions at any cost, or simply to achieve a renegotiation. Such was the case with Arch Coal Sales Company, Inc., where the parties were not able to come to agreement on term, conditions and pricing, so the agreement was terminated for 2004 and 2005 coal deliveries.

Generally, the Fuels Department strives to maintain the tonnages and pricing originally agreed to in its contracts. For example, when supplier problems occur, or when supplier bankruptcy occurs, the Department works to retain the original commitments to tonnage and price. Such was the case with the Pen Coal Corporation bankruptcy, where the original Pen agreement was assigned to Argus Energy LLC.³⁷ In another example, the Vandetta Company was planning to shut down the mine that supplied the Green River Station. The Fuels Department negotiated with Vandetta to modify the contract in order to maintain this source of coal to the Green River Station.

5. Contract Terms and Conditions

Typically, the Fuels Department enters into separate coal contracts for KU and for LG&E. This is primarily due to the fact that these utilities burn coals of considerably different qualities, with LG&E generating stations burning higher sulfur coals, and the KU generating stations burning lower sulfur compliance coals. The exception to this is KU's Ghent Unit #1 that is scrubbed and burns high sulfur coal. Because of this exception, fuel for this unit is procured along with the higher sulfur LG&E coals by the Fuels Administrator who buys coal for the LG&E units.³⁸

The Fuels Department's current strategy for the term of coal contracts is that these agreements should be for terms of from one to three years, although some contracts have terms as long as eight years, and that the terms of the contracts should be staggered so that contracts do not all

³⁵ On-site examination of procurement records by Don Spangenberg on December 3, 4, and 16, 2003.

³⁶ Response to Data Request #25.

³⁷ Ibid.

³⁸ Interviews with Bill Gilbert and Steve Dufour by Don Spangenberg on December 2, 2003.

terminate at the same time. For example, of the 14 long-term contracts that LG&E had in place in mid 2003, four of these contracts had terms of from five to eight years. Of the 25 long-term contracts that KU had in place in mid 2003, three of these contracts had terms of five years.³⁹ This is a reasonable strategy and one that the Department has been able to maintain.⁴⁰

The beginning point for negotiation of contracts is a model contract supplied by the Fuels Department, and one that has received approval from the LG&E Energy legal department.⁴¹ Personnel in the Fuels Department believe that this contract model is accepted in the industry, since often coal suppliers propose terms and conditions taken from this model document. Negotiation of terms and conditions always occurs in the process of reaching final agreement on any coal contract but most coal contracts end up having the same general approach to provision of coal to KU and LG&E.

Coal contracts do not contain periodic price escalation, as is often found in utility coal contracts, but instead the contracts contain specified prices for the coal for each year under the contract. These prices are negotiated at the inception of the contract. The only quarterly price adjustments contained in the KU and LG&E fuel-related contracts are those price adjustments in the barge and rail contracts, where there are provisions for periodic price adjustment in accordance with changes in certain indices.

Coal contracts contain fairly standard provisions related to coal quality, in terms of both quality specifications and penalties for coal quality that does not meet specifications. The contracts do not contain premium provisions for delivery of superior quality coal, although since coal pricing is based on a cents/MMBTU basis, provision of coal with higher BTU content rewards the supplier of the coal through the cents/MMBTU calculation. The quality adjustment provisions (penalties) are based on changes in the parameters of BTU, Ash, Sulfur and Moisture. Such adjustments are based on monthly weighted averages.

The general approach to calculation of penalties in coal contracts is the same in all coal contracts and based on the technique in the following example of a BTU penalty calculation. If the contract guarantee on BTU, for example, is 11,000 BTU/#, there will be a deadband, depending on the contract, of perhaps 200 BTU/#. No penalty will be incurred if the coal quality is within this deadband, but if the coal quality drops below 10,800 BTU/#, then the penalty will be calculated all the way back to 11,000 BTU/#, the contract guarantee, not back to 10,800 BTU/#.

Generally, all weights and coal sample analyses for LG&E coal are based on measurements taken by LG&E. For KU coal, it is a mixed bag, with fewer coal measurements based on KU determinations, and more as conducted by the coal suppliers. These differences in contract provisions relate to different coal markets (compliance and high sulfur), the timing of the contract negotiations (market strength at the time of negotiations), and capabilities at the generating stations, where the equipment at the LG&E stations tends to be ASTM certified and

³⁹ Response to Data Request #2.

⁴⁰ Ibid.

⁴¹ Interviews with Bill Gilbert and Steve Dufour by Don Spangenberg on December 2, 2003.

acceptable to both buyer and seller for purposes of contract measurements, while the equipment at the KU stations is not all ASTM certified. Since it is more desirable to have coal contract weight and sample analysis determinations based on KU or LG&E measurements, the Utilities have programs underway to upgrade weighing and sample system equipment at KU stations so that more contracts can be written based on KU's measurements.⁴²

KU and LG&E coal contracts have provision for rejection, or suspension of coal deliveries or termination of the agreement if certain coal quality specifications are not met. Generally, rejection can occur if coal does not conform to the rejection limits of the contract, or if the coal contains extraneous materials that the Utilities feel is not acceptable. Generally, suspension can occur if the coal quality fails to meet one or more of the guaranteed monthly weighted averages for quality for any two consecutive months or a total of three months in a six-month period. Coal contracts can then be terminated for quality reasons if the seller cannot provide assurance that the conditions leading to the suspension have been corrected, or if subsequently, the coal fails to meet any of the guaranteed monthly weighted averages for quality for any one month within the next six months. These suspension and termination provisions vary some from contract to contract, but the above is representative of KU's and LG&E's rights in these areas of the contract.

Other terms and conditions in KU's and LG&E's coal contracts are generally representative of the features typically found in electric utility coal contracts.

6. Fuel Oil and Natural Gas

Approximately 98% of KU's and LG&E's fuel for power generation is provided by coal, with the balance provided by fuel oil and natural gas. Natural gas is the primary fuel for the combustion turbines, with the majority of this usage occurring at the E. W. Brown site. The following table illustrates the combustion turbines on the LG&E/KU system.⁴³

Figure III.2 - Combustion Turbines

Station	Capacity (MW)	# of Units
Cane Run	14	1
Paddy's Run	193	3
Trimble County	320	2
Waterside	22	2
Zorn	14	1
E. W. Brown	947	7
Haefling	36	3

⁴² Tours of generating stations by Don Spangenberg on December 15 and 16, 2003, and interview of Caryl Pfeiffer by Don Spangenberg on December 2, 2003.

⁴³ Kickoff presentation on November 18, 2003.

Fuel oil is used for backup in the combustion turbines, and also used for startup and flame stabilization at the E.W. Brown, Ghent, Green River, Trimble County and Tyrone Stations. Natural gas is used for startup and flame stabilization at the Cane Run and Mill Creek Stations.

At the beginning of each year, the Fuels Department prepares a set of blanket purchase orders for fuel oil procurement for the coming year for each of the suppliers on the list of potential vendors of fuel oil, but with prices and quantities left blank. Then as the year progresses, the vendor list is contacted whenever there is a need for fuel oil and the blanket purchase orders are then filled out for the appropriate fuel oil needs. The orders are approved by the Manager of the Fuels Department for all fuel oil procured.

One of the Fuels Coordinators buys the fuel oil for the E.W. Brown CTs, Trimble County and Tyrone. The E.W. Brown Station will call the Fuels Coordinator with a request for fuel oil as needed. Then, the Coordinator calls the list of fuel oil vendors and requests quotations. Since the price of fuel oil changes daily, vendors respond by 1PM so that orders for the least expensive fuel oil can be confirmed by 2PM of that day. Subsequently, the order is forwarded to the Manager of the Department for approval. A similar process is followed for the fuel oil requirements at Trimble County and Tyrone Stations, as needed.

Fuel oil requirements for Ghent and Green River Stations are handled by station personnel in a solicitation process similar to the one used by the Fuels Coordinator. When the station selects the lowest priced supplier, the order is sent to the Manager of the Fuels Department for approval.

While the actual fuel oil solicitation process is split between the Fuels Department and several of the generating stations, the process and procedure established for this procurement is suited to the needs and staffing of both the Fuels Department and the stations that handle their own solicitations. The process works smoothly and is adequately controlled by the Fuels Department.

Natural gas requirements are not handled in any way by the Fuels Department.

C. Conclusions

1. The Fuels Department has a reasonable process for vendor qualification and certification.

Any potential coal supplier can have its name added to the vendor list maintained by the Fuels Department. Vendor certification occurs after bids are submitted by potential coal suppliers. The certification process is a thorough one, is well documented, and is supported by the expertise of the mining engineer on the Department staff.

The Fuels Department asks potential coal suppliers to submit considerable data if that supplier is a candidate for supply of coal to the Utilities. Typically, at some point in any vendor

certification process, the Department will ask for the following information in order to qualify the vendor:

- Reserve Description
- Mining Plans
- Production Equipment
- Preparation Facilities
- Staffing
- Production Record
- Permit Status

Significant information is required in each of these categories in order for the Fuels Department to be satisfied of the capability of the potential coal supplier to actually deliver coal of the quality and at the quantity proposed. In addition, the Department may request financial data and a Dun and Bradstreet Report on the potential coal supplier will be generated. If all operational data, financial data, and the information gathered through a mine site inspection are acceptable, the vendor will be approved as a finalist on the short list of suppliers for the solicitation in question.

2. The Fuels Department has a reasonable process for identification of acquisition needs.

The Fuels Department has a strong link between the fuel planning process and the commencement of solicitations for actual coal suppliers, as discussed in considerable detail in Chapter II, Fuels Planning. In summary, fuel planning is a joint effort between personnel in the Fuels Department and the Generation Planning Department. These departments engage in multiple iterations on the BTU forecast from Generation Planning over a several month period that provide a close linkage between fuel plans and overall corporate plans. The Spring RFP issued by the Fuels Department incorporates the latest BTU forecast from Generation Planning so that this RFP reflects the latest estimates of requirements for each of the generating units on the KU/LG&E system. Because the BTU forecast is initiated at the corporate level, it includes inputs from all relevant departments, most importantly the Regulated Generation Department for generating unit operating and maintenance schedules, and the Environmental Affairs Department for inputs related to Clean Air Act issues.

3. The Fuels Department has a reasonable process for the solicitation of coal and transportation supplies.

The foundation for the Department's solicitation process is the formal Fuel Procurement Policies and Procedures. The solicitation process is consistently followed by the Department and solicitations are sent to a list of from 170 to 180 potential coal suppliers. The process includes appropriate controls and cross checks to ensure a fair and thorough process that is not compromised by misuse of proprietary data, or favoring of one supplier over another. Similar programs are followed for coal transportation requirements.

4. The Fuels Department has a reasonable approach to acquisition of the transportation component of fuel procurement and delivery.

The Department has appropriately combined all of its needs for barge transportation into one master barge contract that serves both LG&E and KU. Rail contracts are appropriate to the specific coal movements with which they are associated. The Department appropriately procures coal that is delivered by truck on a delivered cost basis, with the coal suppliers providing truck transportation as part of the delivered price of coal.

Both barge and rail contracts have been obtained through a solicitation process that is similar to the process followed for coal procurement.

Wherever possible, the Fuels Department tries to take advantage of the diversity advantage of having two different transportation modes at a generating station. This is accomplished through the competitive processes of letting it be known to both coal suppliers and transportation vendors alike that comparative prices are being obtained for coal deliveries to the Mill Creek, Cane Run and the E. W. Brown Stations. In addition, at Cane Run, LG&E Energy launched a barge study, and spent some money on this effort. The result was that more favorable rail rates were obtained, even though the barge project was not completed. The Commission's Management Audit Branch was thoroughly advised about this barge project.

Also at Cane Run, two different rail lines serve the station – the Norfolk Southern and the Paducah and Louisville railroads. Therefore, the Fuels Department uses this situation to competitive advantage by pitting each railroad against the other in the transportation pricing process.

Mindful of the importance of transportation flexibility to favorable economics of fuel delivery, LG&E Energy has addressed this in its corporate business plan for 2003 and included several specific coal transportation-related objectives. While confidential in nature, these objectives relate to improving coal transportation flexibility at the Ghent, Trimble County and Cane Run Stations.

5. While thorough and consistently followed, the coal procurement evaluation process must be improved. Coal is now procured with the objective of providing a reliable supply at the lowest delivered cost to the power plant. A much better objective would be to procure coal that will reliably deliver the lowest cost electrical energy.
(Recommendation #1)

All bids received in response to coal solicitations are ranked according to those bids that can provide the lowest delivered cost of coal to the appropriate power plant. No other economic factors are added in this bid evaluation process to adjust the bids to recognize that different coals may have different impacts on the power generation process and eventually result in having quite different impacts on the final cost to produce electrical energy from these different coals. This is due to different quality characteristics of these coals and the resulting different impacts on coal

handling operations, coal grinding operations, boiler operation, emission allowances, ash handling and disposal and scrubber operation and sludge disposal costs. On an annual basis, coal quality factors, and their impact on operations and maintenance, are evaluated subjectively.

Typically, electric utilities use some form of a coal evaluation model that ranks coal bids on the basis of which coals will result in the production of electrical energy delivered to the bus-bar at the lowest possible cost. These evaluation tools or models are generally available in the marketplace, having been developed and tested through many years of utility use, and have been called CQIM (Coal Quality Impact Model), and now VISTA, the latest evolution of CQIM. Some utilities do not use commercially available evaluation models, but have constructed their own models that run quite effectively on spreadsheets.

Typically, these coal evaluation models adjust the delivered price of coal to account for variations in ash content, and for variations in sulfur content of the coal. Ash content adjustments are necessary to account for the different power plant operation and maintenance costs to grind coal of differing ash contents, to handle coals of different ash contents in the boilers, and to dispose of different quantities of ash. Adjustments for sulfur content are necessary to account for the different power plant operation and maintenance costs from scrubber operation and scrubber sludge disposal, as well as emission allowance costs.

The VISTA model, marketed in Europe by an affiliate of KU and LG&E, Powergen, does much more than merely adjust prices for ash and sulfur content of coals. It is an all encompassing evaluation package that optimizes fuel purchasing by analyzing current supplies and alternative fuel options, including costs such as coal purchase, transport, maintenance and auxiliary power requirements. The model is unit specific and is calibrated from unit specific performance data. VISTA's comprehensive outputs include any predicted derates, total cost of power generation for each of the fuel scenarios, changes in emissions, fuel burn rates, availability and boiler efficiency. The Fuels Department's current processes for fuel procurement and management do not provide these types of quantified fuel-related assessments.

- 6. LG&E Energy has recognized that coal specifications can impact the delivered cost of electrical energy, and has thus developed a corporate initiative to consider alternate coal specifications on its plants that supply off-system sales in order to improve profitability of electricity from these plants. A much better corporate initiative would be an expanded one that also emphasizes the importance of considering alternate coal specifications for all generating stations in order to ensure that KU and LG&E ratepayers receive the benefit of the lowest cost electrical energy. (Recommendation #2)**

The LG&E 2003 Corporate Business Plan includes an initiative to "Consider alternate fuel specs for plants supplying off-system sales in order to improve marketability and profitability of electricity from those plants." This initiative appropriately recognizes that changes in fuel specifications can have an impact on the cost of electrical energy. However the focus of this initiative is not completely balanced because it appears that LG&E Energy is making special

efforts related to the non-regulated portion of its business (off-system sales from the KU and LG&E generating units), and not making similar efforts for the regulated portion of its business (sales to native load customers from the KU and LG&E generating units). Said another way, the initiative appears to focus on the importance of corporate profitability, instead of providing focus on lowering costs to ratepayers.

Liberty's problem with this initiative is that it appears to be one-sided in favor of corporate profitability, without mention of a similar initiative addressing the needs of native load customers – the ratepayers of KU and LG&E. Liberty feels that if it is necessary to introduce a change in strategy, with a new corporate objective to improve corporate profitability, it should also be necessary to introduce a similar change in strategy, with an accompanying new objective, that will benefit ratepayers. While this initiative is a change in focus for the KU and LG&E plants supplying off-system sales, LG&E Energy has not developed a similar initiative to change the focus on coal qualities considered for the KU and LG&E plants supplying native load customers, in order to reduce costs to these customers as well.

7. The Award Recommendation Letter process used by the Fuels Department for the approval of recommended purchases is sound.

The Fuels Department uses a very formal process for the documentation of the evaluations and the analyses conducted supporting recommendations to procure fuel. This process is termed the Award Recommendation Letter. Award Recommendation Letters are prepared by one of the Fuels Administrators and contain a number of sections, including a comparison of the recommended procurement with the latest coal forecast, a description of the recommended company and its mining operation and why the operation is acceptable, a price comparison with current contracts, a listing of savings achieved through negotiations as compared to the original bid price, and budget numbers as well. The letter also contains a listing of management positions that must approve the procurement, according to the magnitude of the procurement and the Approval Authority Matrix from the fuel procedures. Coal bid evaluation sheets are also attached to the letter. This process is effective, was consistently carried out, and appropriately approved by management.

8. The Fuels Department's separate solicitation processes for obtaining coal for KU and for LG&E generating stations could be improved through joint solicitations in certain circumstances. (Recommendation #3)

The Fuels Department typically issues two main solicitations for coal in the Spring of each year, one for KU generating units, and one for LG&E generating units. The reason for the dual solicitations lies in the different characteristics of the coals for the units on each system. Department representatives also believe the dual process provides for a more orderly and organized process within the Fuels Department for issuance of the RFP, receipt and evaluation of bids. There is some logic to this process, but since there are some coal suppliers that are common suppliers to both KU and LG&E, the separate dual process may be eliminating the opportunity to achieve any economies of scale that might be inherent in having one supplier

provide coal to both utilities. Unless the Fuels Department specifically asks coal suppliers, who have the capability to respond to both solicitations, for pricing discounts related to provision of more coal to multiple destinations, then the Department might be passing up the opportunity to obtain such pricing discounts.

9. The Fuels Department has a satisfactory process for both the negotiation and the renegotiation of its coal contracts.

The Fuels Department uses a process of negotiation with a short list of potential coal suppliers to arrive at contracts for delivery of coal to its generating stations. This is an effective process that is guided by both formal written procedures for this activity as well as by a custom of operation in the Department. Because of the Department's ability in this area, it has generally been able to achieve favorable terms and conditions for its coal contracts, and to arrive at delivered coal prices that are typically lower than the original prices proposed by the coal suppliers in their bids. Lower prices are not achieved on all contract negotiations, but in the majority of instances lower prices have been achieved.

Coal contracts can be renegotiated for any number of reasons, including provisions within the original contracts for renegotiation based on certain criteria, as well as either supplier or buyer requested renegotiations. Overall, the Fuels Department has been effective in these renegotiation processes and concluded them with terms and conditions and pricing that is generally as favorable as the original contract, if not more so. The majority of the contract renegotiations since 2001 have been as a result of contract reopener provisions.

Those renegotiations not related to reopener provisions have generally been initiated by the Fuels Department in order to improve fuel management. Contracts with Peabody and Charolais were renegotiated in order to improve coal inventory management, without price penalty to the Utilities.

The Fuels Department does not renegotiate coal contracts at any cost. For example, the renegotiation with Arch Coal Sales Company, Inc., did not result in agreement, and the contract was terminated for 2004 and 2005 coal deliveries.

Generally, the Fuels Department strives to maintain the tonnages and pricing originally agreed to in its contracts. For example, when supplier problems occur, or when supplier bankruptcy occurs, the Department works to retain the original commitments to tonnage and price. Such was the case with the Pen Coal Corporation bankruptcy, where the original Pen agreement was assigned to Argus Energy LLC. In another example, the Vandetta Company was planning to shut down the mine that supplied the Green River Station. The Fuels Department negotiated with Vandetta to modify the contract in order to maintain this source of coal to the Green River Station.

10. The Fuels Department has appropriately structured the terms and conditions of its coal contracts.

The Fuels Department has been effective in structuring the terms and conditions of its coal contracts. The contracts for both KU and LG&E have a mix of terms ranging from one to eight years, and are structured so that all contracts do not expire at the same time. The contracts establish a diversity of supply in terms of river, rail and truck transportation, large versus small supplier, and different producing regions. The multitude of contracts ensures that the Department's supply resources do not place too much emphasis on any one supplier. The contracts are appropriately structured to provide leverage to KU/LG&E for enforcement of the delivery of coal of the desired quality, through the various coal quality penalty provisions of the contracts, and the rejection, suspension and termination provisions in the contracts. Other terms and conditions of the contracts are typical of those found in utility coal contracts today.

D. Recommendations

- 1. Change the focus of coal procurement in order to shift the objective from procurement on the basis of the lowest delivered cost of coal to power plants to a new focus of procurement on the basis of selecting coal supplies that will provide the lowest delivered cost of electrical energy, consistent with other objectives of reliability of both coal and power supply, and compliance with environmental and other regulations. (Conclusion #5)**

The Fuels Department should immediately establish an enhanced process for evaluation of coal supplies to incorporate a quantifiable process for selecting coals that will produce the lowest delivered cost of electrical energy. Other current procurement objectives relating to reliability, customer service and compliance with regulations should be retained. The new program should address the impacts that coals of varying qualities have on operations and maintenance costs of power plants, including ash and sludge handling and disposal costs, environmental compliance costs (including emission allowances) as well as compliance with other regulations. The process selected can either be based on commercially available tools, or internally constructed tools, but should result in optimization of the entire coal procurement process, including evaluation of current supplies and alternative fuel options, costs of the various components of the supply chain including fuel and transportation, costs of maintenance and operation of generating facilities, evaluation of derates, changes in emissions, fuel burn rates, availability and boiler efficiencies, and the ultimate cost of electrical energy delivered to the bus-bar.

- 2. Expand the current corporate objective related to consideration of alternate fuel specifications in order to improve profitability of off-system sales, by development of a new objective of also considering alternative fuel specifications in order to reduce costs to ratepayers. (Conclusion #6)**

This recommendation is necessary to ensure that any corporate initiative addressing profitability of off-system sales reflects a balance and include the objective of also providing low costs to the Utilities' ratepayers. It should be made clear that benefits to ratepayers resulting from changing coal quality receive at least the same corporate emphasis as profitability to shareholders.

Liberty feels strongly that if it is appropriate to institute a new corporate strategy to “Consider alternate fuel specs for plants supplying off-system sales in order to improve marketability and profitability of electricity from those plants”, then it is also appropriate to have a similar corporate strategy to apply this same new fuel procurement approach to the KU and LG&E plants that supply power to captive ratepayers.

Finally, accomplishment of Recommendation #1 above is necessary in order to be effective in accomplishing this Recommendation #2. Currently, the Fuels Department has no tools with which to quantify the impacts of varying coal qualities on the cost of electrical energy delivered either to off-system customers, or to the KU and LG&E ratepayers.

3. Develop a new plan for coal solicitations that includes testing and evaluation of joint KU and LG&E solicitations in order to take advantage of any economies of scale that would enable coal suppliers who provide coal to both KU and LG&E to offer pricing, terms and conditions that might be more attractive than possible under separate solicitation and bidding processes. (Conclusion #8)

While it is clear that generally KU and LG&E burn different types of coals, it is also clear that there are a handful of coal suppliers that currently provide coal to both utilities. The Fuels Department needs to determine if there are any economies of scale either on their own procurement and fuel management end, or if there are any economies of scale at the supplier end (either production or administration) that could result in contractual arrangements that are more favorable for the Fuels Department on a joint basis rather than on a separate basis. Liberty feels that it is especially important to ask coal suppliers who are capable of responding to both KU and LG&E solicitations if there are any price discounts possible in the event the Department procures coal for both KU and LG&E from that one supplier. Unless the question is asked, the Fuels Department will not know if opportunities for even lower prices are being missed.

Currently, members of the Fuels Department believe that separate solicitations provide for a more organized and orderly approach to fuel procurement and management than would be experienced through a joint process. But the purpose of this recommendation is to test this notion in a more formal manner. Part of the Department's evaluation of a joint procurement strategy should be the determination and comparison of costs and benefits for the Fuels Department in its own fuel procurement and fuel management process for joint versus separate solicitations and fuel management, in addition to any benefits that might be received from the coal suppliers as a result of such joint solicitations.

IV. Supply Management

A. Scope

This chapter addresses the following topics:

- Contract Administration Responsibility
- Receipt Inspections and Information Monitored
- Historical Supplier Performance
- Disputes and Backcharges
- Inventory Practices
- Waste Management
- Regulatory Compliance

B. Background

1. Contract Administration Responsibility

Almost all members of the Fuels Department are involved in fuel contract administration in some way. Responsibility for overall direction of fuel contract administration rests with the Director of the Department who essentially ensures that these activities are conducted in ways that support the goals of the Department.¹ One of the major accountabilities of the Manager, Regulated Fuels, is administration of fuel contracts. In this capacity, this individual manages the work of the two Fuels Administrators, whose primary responsibility is the actual administration of these contracts.²

The Fuels Administrators are involved in the day-to-day administration activities of the contracts in terms of monitoring quality compliance of coal deliveries, quantity compliance of coal deliveries, and compliance with the other terms and conditions of the contracts.³ The Fuels Administrators establish the initial delivery schedules under each of the coal contracts in order to accomplish the annual delivery targets of the contracts. Subsequently, each month they update the monthly delivery schedules for the balance of the year in order to account for deliveries to date and the balance of the annual contract commitments to be met by each of the coal suppliers. One of the Fuels Administrators handles the fuel contracts for the KU generating stations and the other Fuels Administrator handles the fuel contracts for the LG&E generating stations.

The two Fuels Coordinators, while not working directly for the Fuels Administrators, provide considerable day-to-day assistance to them in contract administration through scheduling of coal

¹ Interview with Caryl Pfeiffer by Don Spangenberg on December 2, 2003.

² Response to Data Request #38.

³ Interviews with Bill Gilbert and Steve Dufour by Don Spangenberg on December 2, 2003.

shipments from the coal suppliers to each of the KU and LG&E generating units.⁴ This scheduling activity represents a considerable portion of the responsibilities of each of the Fuels Coordinators, as they adjust delivery schedules regularly within each month in order to achieve the overall monthly and annual delivery targets established by the Fuels Administrators. The scheduling activities of the Fuels Coordinators include daily phone and e-mail contact with coal suppliers, coal transportation providers, and personnel at each of the generating stations. The responsibilities of the Fuels Coordinators are divided similarly to the responsibilities of the Fuels Administrators, such that one of the Coordinators handles all scheduling for the LG&E units, while the other Coordinator handles all of the scheduling for the KU units.

The fuel contracts define the basic requirements against which vendor performance is monitored through the contract administration process. From these contracts, the annual and monthly delivery schedules are established by the Fuels Administrators. This scheduling is established through spreadsheets that the Administrators establish and maintain on a regular basis. Actual performance information comes from the data on coal receipts that is fed into the CSMS by personnel at the plants, or in some cases by the Fuels Coordinators. Similarly, the contracts establish the coal quality parameters against which deliveries are measured each month, generally on a monthly weighted average basis. Coal sample analysis information collected within the computer system at the Ghent System Laboratory is uploaded into CSMS, and subsequently monitored by the Fuels Administrators through the various CSMS reports on coal quality.

2. *Receipt Inspections and Information Monitored*

Coal Weights

Weights for coal delivered to the KU and LG&E generating stations, either by barge, rail or truck, are always measured by certified scales.⁵ However, contractual provisions specify whose scales are to be used for these determinations. In the case of shipments of coal to LG&E stations, the majority of coal weights are based on measurements by scales at LG&E facilities. This is due to the fact that LG&E scales have historically been certified and used for contract measurement purposes. Even though some of the coal for LG&E stations is delivered by barge, the weight of this coal is determined by scales on the conveyors that are part of the barge coal unloading system. No coal weights are determined by barge drafting techniques.

The weights for coal delivered to KU generating stations are measured both by scales at KU facilities and by vendor or railroad owned scales, as a function of the specific coal contract and the scale capabilities at the KU stations. As mentioned earlier in this report, it is desirable to have coal weights determined on scales at KU facilities, so programs are underway to upgrade

⁴ Interviews with Carol Davis and Sharon Schroeder by Don Spangenberg on December 3, 2003.

⁵ Interviews with Bill Gilbert and Steve Dufour by Don Spangenberg on December 2, 2003.

these scales as necessary so that they can be certified, and eventually used for contract measurement purposes.

Other than at KU's Green River Station (truck weight only) there are no other instances on either the KU or LG&E system where coal weights are electronically fed into the CSMS directly from the scales themselves.⁶ In most cases, coal weights are first determined by the scales and converted into an electronic signal that either results in a digital readout of the coal weight or a paper printout of the coal weight. Some utilities, including WKE (truck weights only), have processes for automatically transmitting coal weights in the form of electronic signals from scales directly into the computerized fuel management system. This avoids considerable duplication in data handling of coal weight information, as well as avoiding the possibility of the introduction of errors in coal weight information. Manual handling of coal weight data through the process of reading electronic data information and writing it down on coal receipt logs with pencil and paper, or of reading paper printouts from scales and transferring this weight information onto coal receipt logs with pencil and paper create the possibility of reading or writing this information incorrectly. In many cases at KU and LG&E generating stations, this coal weight information is manually handled a number of times before it is finally input into the CSMS.

The following example illustrates this multiple handling of coal weight information for the Ghent Station.⁷

- Coal weights are read from an electronic readout in the barge unloader cab and written down on the "Preliminary Barge Unloading Report" (PBUR), in pencil, by the barge unloader operator.
- At the end of the day, these coal weights on the PBUR are compared with the electronic printout weights from the digital integrator in Transfer House #1 to ensure that the weights have been written down correctly on the PBUR.
- In the yard office, the coal weights from the PBUR are manually entered into the yard computer. The yard computer then prints out the "Final Barge Unloading Report", containing the official weights for coal on each of the barges unloaded.
- The paper copy of the PBUR is hand carried to the plant clerk in the main station office, where the weights for the individual barges unloaded are manually totaled on an adding machine and this total hand written on the bottom of the PBUR.
- The plant clerk enters all of the barge weight information into CSMS.

⁶ Ibid.

⁷ Tour of the Ghent Station by Don Spangenberg on December 15, 2003.

As can be seen from this multiple handling of coal weight information for barges unloaded at Ghent, there are a number of opportunities for mishandling of this information either by reading it incorrectly, writing it down incorrectly, or incorrectly keying it into a computer system. In addition, there are steps in this process involving cross-checking of data to ensure it is correct, and involving manual tabulation of data. If coal weight information were to be fed electronically into CSMS, then all of these repetitive and manual processes could be eliminated. In summary, such an electronic transfer of information would eliminate the following:

- One reading of an electronic digital meter;
- Three different manual entries of information either onto paper, or into computers;
- One manual tabulation of weight information;
- One comparison of printout information with manually read and written information;
- Two instances where information is hand carried from one point in the process to another.

The following example illustrates the multiple handling of coal weight information for the Mill Creek Station.⁸

- Barge weights are printed out from the digital integrator in #3 Control House;
- The paper printout is hand carried to the yard office;
- Yard office personnel manually transfer coal weight information from the paper printout to the Barge Unloading Report (BUR);
- Individual barge weights are manually totaled by personnel in the yard office to obtain a total tons of coal unloaded, and create the final version of the BUR;
- The final version of the BUR is faxed to the Fuels Coordinator in the main headquarters office;
- The Fuels Coordinator cross-checks some of the barge information on this BUR and then hand carries the BUR to the Senior Secretary in the Administration Section;
- The Fuels Coordinator creates a spreadsheet for the purpose of manually tracking the coal weights taken from the BUR and to verify the tons unloaded are assigned to the correct vendor;
- The Senior Secretary in the Administration Section enters the coal weight information into CSMS;
- The Fuels Coordinator cross-checks daily CSMS output reports to ensure that the coal weight information has been correctly entered into CSMS by the clerk in the Administration Section;
- At the end of each month, the Fuels Coordinator manually tabulates the coal weights on the spreadsheet created in the above step;

⁸ Tour of the Mill Creek Station by Don Spangenberg on December 16, 2003.

- The Fuels Coordinator cross-checks monthly CSMS output reports with the spreadsheet totals from the above step to ensure that all data handling on coal weights both by the Senior Secretary and by CSMS is correct.

As can be seen from this multiple handling of coal weight information for barges unloaded at Mill Creek, there are a number of opportunities for mishandling of this information either by reading it incorrectly, writing it down incorrectly, or incorrectly keying it into a computer system. In addition, there are numerous and unnecessary steps in this process involving cross-checking of data to ensure it is correct, and involving manual tabulation of data. If coal weight information were to be fed electronically into CSMS, then all of these repetitive and manual processes could be eliminated. In summary, such an electronic transfer of information would eliminate the following:

- Three manual transfers of data, either by FAX or hand carrying of paper;
- Two manual entries of information either onto reports or into a computer;
- Daily tabulation of barge report totals;
- Creation of a summary spreadsheet;
- Monthly tabulation of spreadsheet totals;
- Three cross-checks of information.

Liberty's examination of the processes used by the Fuels Department to track coal weight information found that this information was appropriately compared to coal contracts to determine vendor compliance with the terms and conditions of the contracts. Further, Liberty found that the Fuels Department communicated effectively with vendors on coal weight related issues.

Coal Samples and Sample Analysis

Personnel at the KU and LG&E generating stations visually inspect all coal received to ensure it is free of contamination from extraneous materials such as wood, metal, rocks and other miscellaneous debris that should not be contained within coal shipments from coal suppliers.⁹ As noted in Chapter III, Fuels Acquisition, fuel contracts contain provisions for rejection of coal if such contamination is found.

All coal delivered to KU and LG&E generating stations is sampled to determine the quality of the coal and that the quality is within contractual specifications. However, contractual provisions specify whose samples are to be used for these determinations. In the case of shipments of coal to LG&E stations, the majority of coal analyses are based on measurements of samples taken at LG&E facilities. This is due to the fact that LG&E sampling systems have historically been certified and used for contract measurement purposes.

⁹ Interviews with Bill Gilbert and Steve Dufour by Don Spangenberg on December 2, 2003.

The samples and analyses used for contractual purposes for coal delivered to KU generating stations are based on either KU samples and analyses, or samples and analyses of the coal supplier, as a function of the specific coal contract and the coal sampling system capabilities at the KU stations. As mentioned earlier in this report, it is desirable to have coal samples taken by equipment at KU facilities. Therefore, programs are underway to upgrade these sampling systems as necessary so they can be certified, and eventually used for contract measurement purposes.

Regardless of whose samples and analyses govern, for contractual purposes, both KU and LG&E take samples of all coal delivered. When supplier-provided samples and analyses govern, the samples and analyses taken by KU and LG&E are used to cross-check the data provided by the coal suppliers. Liberty found that this cross-checking was appropriate.

All coal samples taken at KU and LG&E generating stations are sent to the System Laboratory at the Ghent Station for analysis. Liberty's inspection of the laboratory found that it is well equipped and operated in a satisfactory manner.¹⁰ Generally, the outputs from sample analysis equipment are automatically fed into the Laboratory Information Management System (LIMS). Subsequently, information contained in LIMS is uploaded into the Company's CSMS. Thus, there is little opportunity for incorrect entry of sample analysis results into CSMS, or the need for redundant handling of sample analysis information.

All coal samples taken at Company facilities are clearly marked with the name of the coal supplier on the sample identification tag.¹¹ Because this vendor information accompanies the coal samples as they are collected at each of the generating stations, transported to the System Laboratory, and handled at the System Laboratory, there could be the opportunity to either alter the sample, or substitute samples, if an individual were so motivated to do so. There are several situations in which this could be significant.

First, samples collected at the generating stations are not kept under lock and key, providing the opportunity for access to these samples by any number of individuals at the station site.¹² Second, the coal samples are transported to the System Laboratory by an outside contractor, and again, with the samples not under lock and key, providing the opportunity for access to these samples by any number of individuals.¹³ Thus, coal samples could be altered, or substituted either at the station site, or during their transport to the System Laboratory by any number of personnel motivated by financial gain.

Finally, because all coal samples carry vendor identification, it would be possible for someone at the System Laboratory to switch coal samples with an outside provided sample, if so motivated for personal gain. Liberty discussed this situation with System Laboratory personnel in considerable detail, and is comfortable that this situation is unlikely to occur because of quality control measures at the laboratory.

¹⁰ Tour of the Ghent System Laboratory by Don Spangenberg on December 15, 2003.

¹¹ Ibid.

¹² Tours of the Ghent and Mill Creek Stations by Don Spangenberg on December 15 and 16, 2003.

¹³ Tour of the Ghent System Laboratory by Don Spangenberg on December 15, 2003.

Personnel at the System Laboratory, and also within the Fuels Department, do monitor sample results through reports from the CSMS system for the purpose of detecting quality trends, or coal quality that is clearly out of specification.¹⁴ These individuals feel that any such tampering with coal samples would be detected through monitoring of sample results. Nevertheless, the opportunity for abuse in the sample identification and handling process does exist, at both generating stations and during sample transport. When there is opportunity, individuals motivated by financial gain have been known to take advantage of these opportunities.

Liberty did find that the Fuels Department enforces contractual provisions related to coal quality. It is the responsibility of the Fuels Administrators to appropriately monitor coal quality such that quality in variance with contractual suspension limits is brought to the attention of coal suppliers. KU and LG&E have paid for coal of a certain quality, and have contractual provisions for supplier penalties if this quality is not in conformance with specifications.

Information Monitored

The information discussed above related to the quantity and quality of coal delivered is well monitored for purposes of Fuels Department records, and contract administration. This monitoring occurs in a number of places, including within the Fuels Department, at the generating stations, and at the System Laboratory.

In addition, information on coal quality and quantity translate into eventual payments to coal suppliers by KU and LG&E for this coal. The Administration Manager utilizes outputs from CSMS related to vendor payments and associated cash flows in order effectively manage these activities.

The Manager LG&E/KU Fuels is responsible for the preparation of reports on fuel costs, quality and quantity of fuel received by type, by supplier, by generating station, and for the LG&E/KU system as a whole on a regular basis. These fuel data reports are used within the Fuels Department, and also form the basis for the fuel data contained in the monthly Corporate Fuels and By-Products Report distributed to management of LG&E Energy. This individual also verifies all invoices for fuel procurement, as well as quality adjustments, to ensure that they are in accordance with contractual provisions and agreements.

3. *Historical Supplier Performance*

The two Fuels Administrators spend considerable time monitoring the performance of the coal suppliers.¹⁵ The current coal contracts and purchase orders form the basis for this monitoring process, with the necessary information coming from reports generated by CSMS. The primary information monitored is compliance of the suppliers with the established delivery schedules, the

¹⁴ Ibid.

¹⁵ Interviews with Bill Gilbert and Steve Dufour by Don Spangenberg on December 2, 2003.

coal quantities specified by the contracts, and the coal qualities specified by the contracts. Responsibilities for monitoring this information are clear, and the information is available as necessary for this monitoring process.

There are a number of measures for determining the Company's effectiveness in monitoring supplier performance, and in taking action when this performance is not in accordance with contract terms and conditions. Monitoring effectiveness is evaluated on the basis of the multitude of reports generated by CSMS related to delivery schedules, delivery quantities, and delivery qualities. These reports have been tailored to meet the needs of the Fuels Department in measuring contract compliance on an ongoing basis, and they effectively cover the necessary parameters.

Force Majeure

The Fuels Department has demonstrated that it will take the necessary action when coal deliveries are not in compliance with contractual terms and conditions. Force majeure situations provide an indication of both supplier performance, and how the Fuels Department reacts to supplier performance. Chapter II of this report discusses force majeure situations related to coal supply for both KU and LG&E. In the 2001 through 2003 time period, LG&E experienced two force majeure situations due to operational issues at its Cane Run and Trimble County generating stations.¹⁶ Neither of these situations related to supplier performance on delivery of coal to LG&E stations.

In the 2001 through 2003 time period, KU experienced six force majeure situations.¹⁷ Two were supplier invoked force majeure situations, and four were due to operational issues at KU generating stations. KU operational issues do not relate to supplier performance. In the case of the two supplier invoked force majeure situations, one was appropriately rejected by KU and all required tons were delivered under the coal contract. Under the second supplier invoked force majeure situation, a supplier bankruptcy situation is at issue and LG&E Energy is currently reviewing its options under bankruptcy. Thus, over this three-year period, KU has only experienced two supplier-related force majeure situations where supplier performance was an issue. In only one of these situations has KU experienced any loss of contractual tonnage of coal that was not delivered. This is a good record, and indicates that the Department's care in selecting coal suppliers can minimize force majeure situations.

¹⁶ Response to Data Request #22.

¹⁷ Ibid.

Unresolved Contractual Issues

Unresolved contractual issues provide another indication of supplier performance. Currently, there are only three such situations for both KU and LG&E.¹⁸ LG&E currently is working to resolve one open contractual issue related to the bankruptcy filing of Centennial Resources in 1997 when the coal supply agreement was terminated.

KU currently has two open contractual issues. Both of these situations relate to supplier bankruptcy – one with AEI Sales Company, Inc., and one with Coal Network, Inc.¹⁹ KU is now working to resolve both of these issues.

For both KU and LG&E, supplier bankruptcy is a situation that is difficult to remedy through more aggressive monitoring of supplier performance, and is generally not indicative of any failing on the part of either KU or LG&E. Supplier bankruptcy situations are not always easy to predict, and generally outside the control of a utility receiving coal from that supplier.

Contract Terminations

Contract terminations are another indication of supplier performance. During the period from 2001 through 2003 neither KU nor LG&E was forced to terminate any coal contracts.²⁰ However, during this period some contracts did end as their contract terms expired.

Contract Renegotiations

Contract amendments and renegotiations are another indication of supplier performance. In the majority of situations, if supplier performance is unsatisfactory, the Fuels Department will not renegotiate the contract. During the period from 2001 through 2003, LG&E renegotiated 11 coal contracts.²¹ Of these 11 renegotiations, 7 were part of a normal process resulting from contract reopeners, and if supplier performance had not been satisfactory, the Fuels Department would not have extended the contracts. Of the 4 remaining renegotiations, they were all related to the Fuels Department's efforts to adjust coal inventory or provide for the addition of coal synfuel to the delivery options of the supplier. None of the renegotiations were related to poor supplier performance.

During the period from 2001 through 2003, KU renegotiated 16 coal contracts. Eight of these renegotiations were due to contract reopeners, and the contracts would not have been extended if supplier performance had not been satisfactory. Five of the renegotiations were related to the Fuels Department's efforts to adjust coal inventory or provide for the addition of coal synfuel to

¹⁸ Response to Data Request #21.

¹⁹ Ibid.

²⁰ Response to Data Request #23.

²¹ Response to Data Request #25.

the delivery options of the supplier. Two of the renegotiations were the result of supplier bankruptcy, and one was as a result of inability to reach agreement on new pricing conditions under the contract. Thus, during this period, KU did not renegotiate any coal contracts as a result of any poor supplier performance.

Coal Quality

Perhaps the most visible indicator of coal supplier performance is the quality of coal delivered and whether or not that quality is in compliance with contractual specifications. During the period from 2001 through 2003 both KU and LG&E experienced relatively minor disruptions due to supplier delivery of out-of-specification coal.²²

LG&E did not experience any situations related to non-delivery of coal, and only two situations related to delivery of coal that was not within contractual specifications.²³ Both of these situations were related to deliveries from Charolais Coal Sales that were outside of the sulfur specifications of the contracts. Each of these situations was corrected by the supplier after notification by the Fuels Department. Thus, supplier monitoring by LG&E has been satisfactory, and supplier performance has been satisfactory. Only two situations related to out of specification coal deliveries compared to the many coal contracts in effect. The multitude of coal deliveries over this period of time does not reflect any adverse trends in supplier performance.

KU did experience one significant situation of non-delivery of coal to its Ghent Station from AEI Coal Sales Company in the year 2000.²⁴ This situation has been previously discussed by the Commission and KU at great length in conjunction with the Polish coal situation. While it is possible that this non-delivery of coal reflects poorly on KU's handling of supplier performance, it is not the purpose of this audit to engage in retrospective examinations of past KU coal supply management activities. However, Liberty did find that in the period since 2000, the Fuels Department has been very attentive to issues of supplier performance, and would expect this attentiveness to continue into the future.

In this same period of time from 2001 through 2003, KU did experience seven²⁵ situations where out-of-specification coal was delivered to generating stations. Six of these situations resulted in notification to the suppliers by the Fuels Department of these quality variations, and the coal quality was promptly brought back within specifications by the suppliers. In one situation, a shipment was rejected by the Fuels Department due to high ash conditions under a short term purchase order, and that purchase order was cancelled. In summary these out-of-specification conditions for KU are not significant in their magnitude, considering the many coal contracts in effect and the multitude of coal deliveries over this period of time. They do not seem to reflect any adverse trends in supplier performance.

²² Response to Data Request #37.

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

4. *Disputes and Backcharges*

The Fuels Department has shown that during the 2001 through 2003 time period it has been quite effective in resolving disputes with coal suppliers. The above section on supplier performance, as well as Chapter II of this report, describe a number of instances where force majeure situations were satisfactorily resolved by the Fuels Department. The above section also shows that there were no contracts that were terminated due to disputes with suppliers, and that there was only one situation where a contract was not continued at the time of the normal contract reopener. In general, there were a number of contract renegotiations, indicating that the Fuels Department has been effective in working with fuel suppliers to achieve mutually satisfactory terms and conditions, and that disputes were not the result of these situations.

The above section also shows that the only cases of open or unresolved contractual issues relate to supplier bankruptcy situations, and not true disputes between suppliers and the Fuels Department.

Finally, the above section shows that coal quality issues did not result in irresolvable situations for any term coal contracts. Only one purchase order had to be cancelled as a result of delivery of coal of poor quality. Liberty's examination of procurement and management files in the Fuels Department indicated that there were many situations where suppliers were penalized for delivery of coal that was not within the normal contract specifications. But these are quite normal occurrences in electric utility fuel management, and reflect that the Fuels Department has been effective in monitoring coal quality, as well as in adjusting coal prices for quality variations in order to ensure that KU and LG&E are appropriately compensated for these quality variations. It should also be noted that these coal quality penalty situations did not exist for long periods of time, reflecting good supplier responsiveness in correcting quality variations.

5. *Inventory Practices*

Inventory Management

Recently, the Director of the Fuels Department conducted a detailed coal inventory study in order to determine the appropriate levels of coal supply to carry in inventory at each of KU's and LG&E's generating stations.²⁶ Historically, the Director felt that coal inventory policy had not been given a lot of thought, and that a more sophisticated approach was required. This study incorporated all of the traditional coal inventory parameters, such as carrying costs, diversity of supply and transportation sources, transportation times, coal qualities, coal interchangeabilities, etc. Input into the study was obtained from several members of the Fuels Department.

The conclusions of the study were that the scrubbed plants on the Ohio River that burned high sulfur coal and were base-loaded had greater availability of coal and thus a 50 day supply of coal in inventory was too much. The study team concluded that 35 days of coal in inventory was a

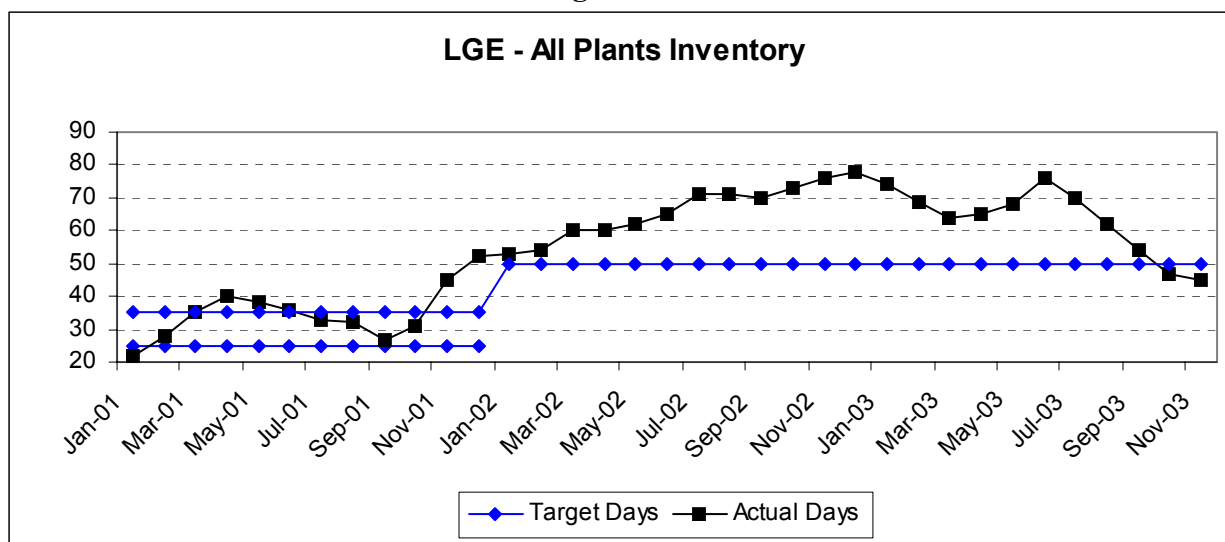
²⁶ Interview of Caryl Pfeiffer by Don Spangenberg on December 2, 2003.

better target for these plants. The study also concluded that the low sulfur compliance coal for Ghent 2, 3, 4 was much harder to obtain, and that 45 days of coal supply was a better inventory target for these three units. Then, for the smaller plants that either operate at full capacity or are not dispatched to operate, the study concluded that the typical “days burn” calculations were not meaningful. The study concluded that at these plants the coal inventory should be as much coal as these plants could physically carry. The rationale for this inventory strategy was that the total coal in inventory was relatively small and did not represent the significant financial investment as would large inventories at the large plants. Further, the full capacity coal inventories at the smaller plants provided more operational flexibility for plants whose operations were more unpredictable.

The overall conclusion of the inventory study was that the above-described targets were established for coal inventory through the end of 2003, and that a new target of a system average coal inventory of 40 days should be the target for the end of 2004.

Liberty has graphed coal inventory at each of KU’s and LG&E’s generating stations for the time period of 2001 through 2003.²⁷ These charts reflect the change in inventory targets at the end of 2001. During the year 2001, there was a maximum and minimum inventory target, but beginning in the year 2002 only one inventory target level has been used. These charts are shown below.

**LG&E Coal Inventory
Figure IV.1**



²⁷ Response to Data Requests #26 and #27.

Figure IV.2

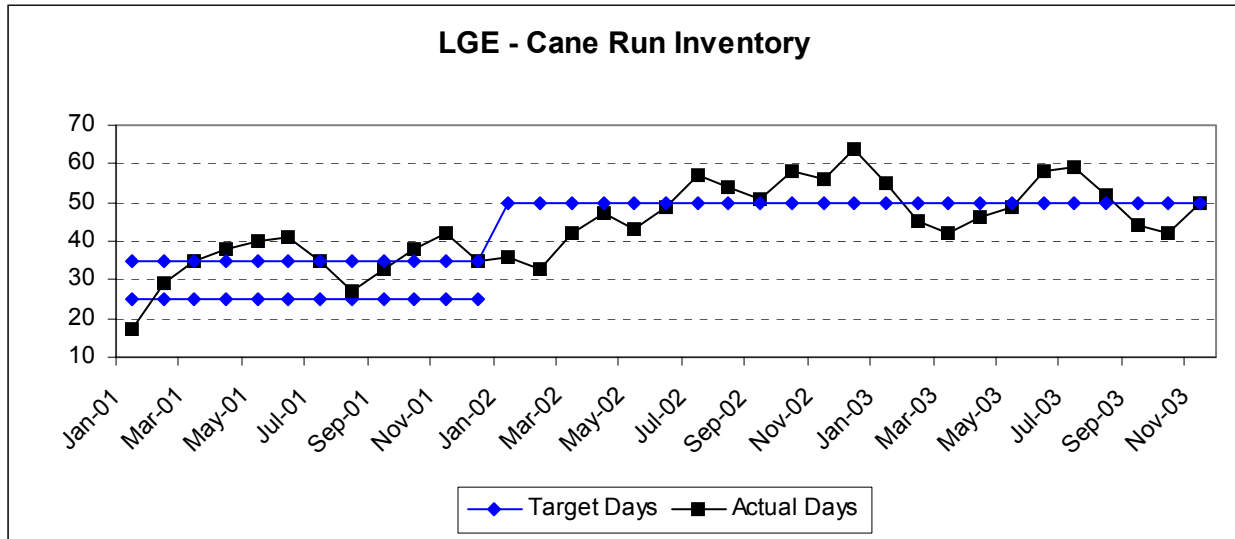


Figure IV.3

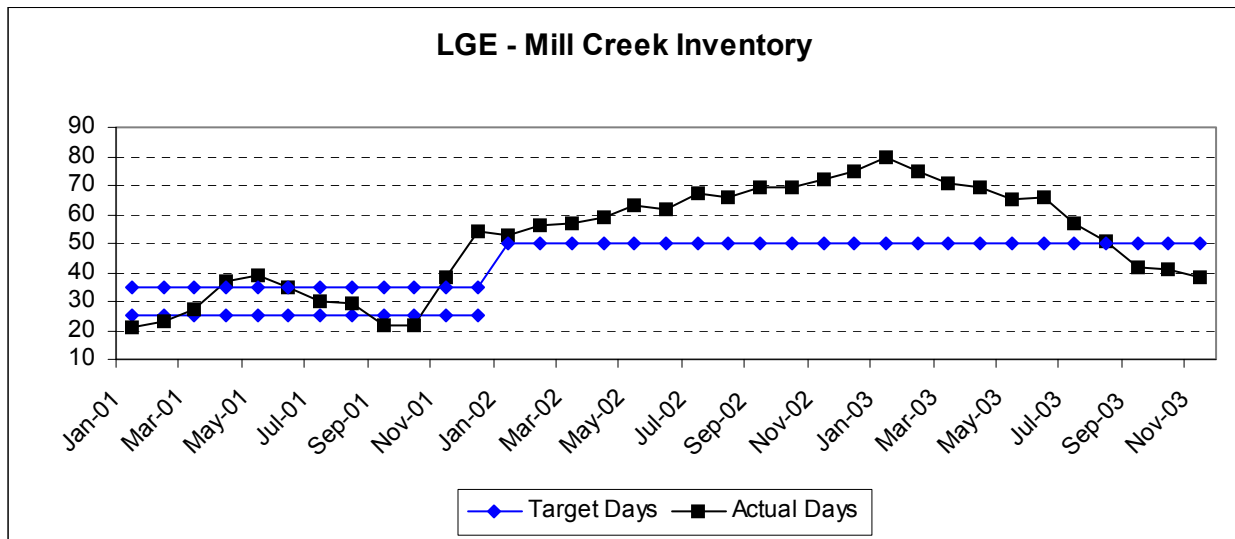
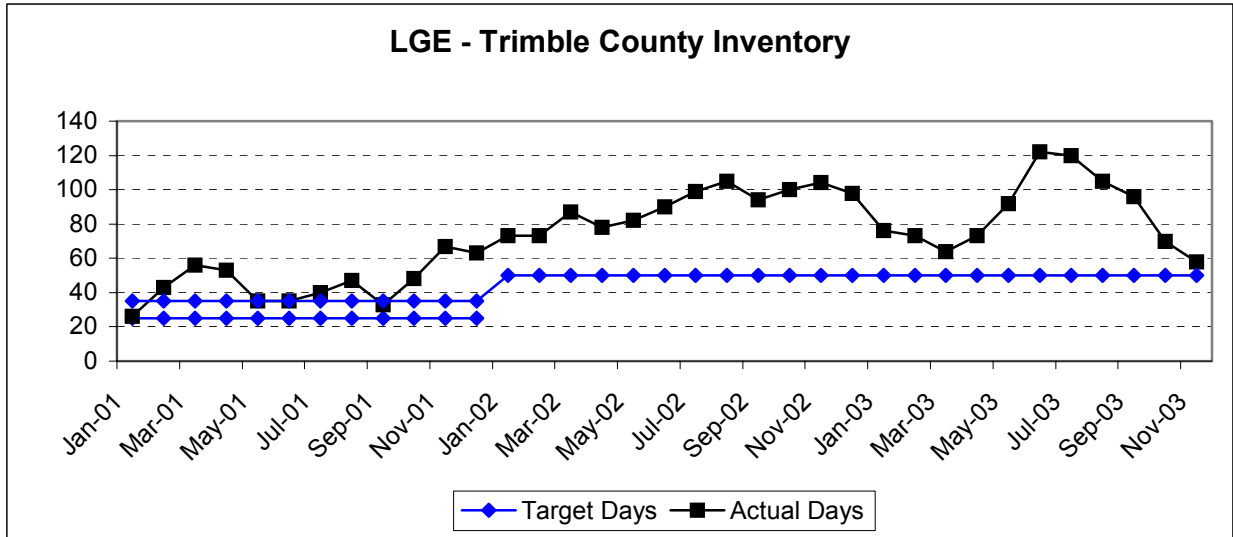


Figure IV.4



KU Coal Inventory

Figure IV.5

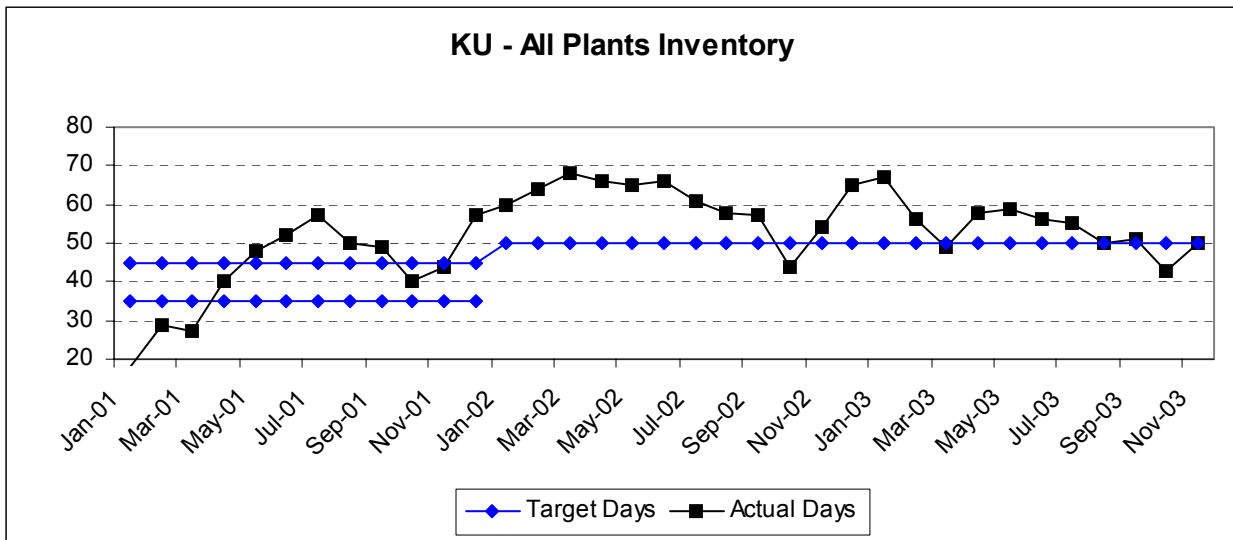


Figure IV.6

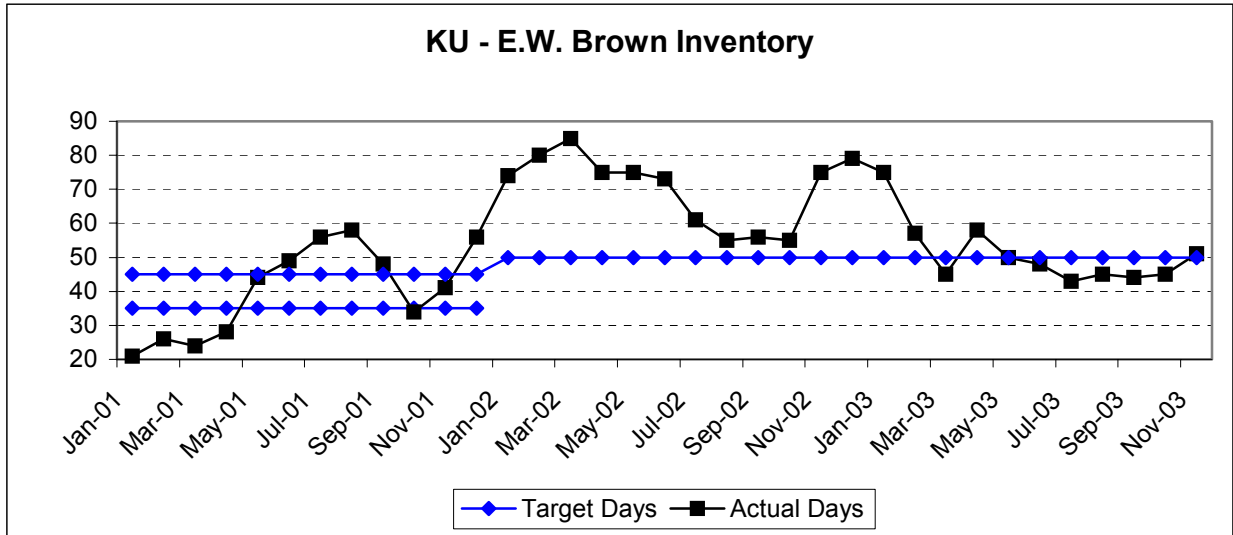


Figure IV.7

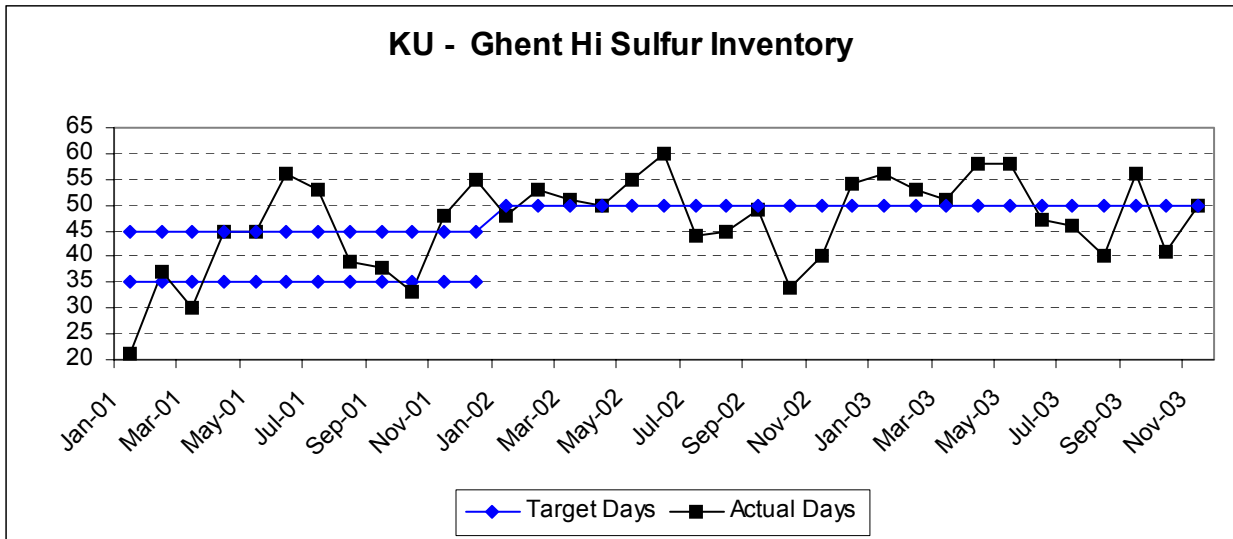


Figure IV.8

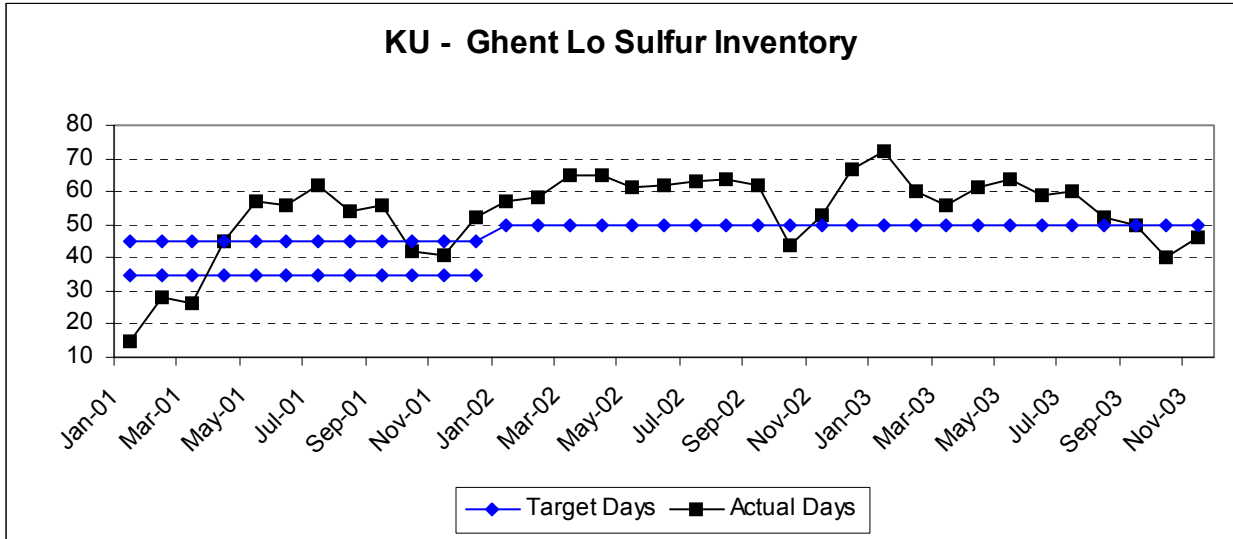


Figure IV.9

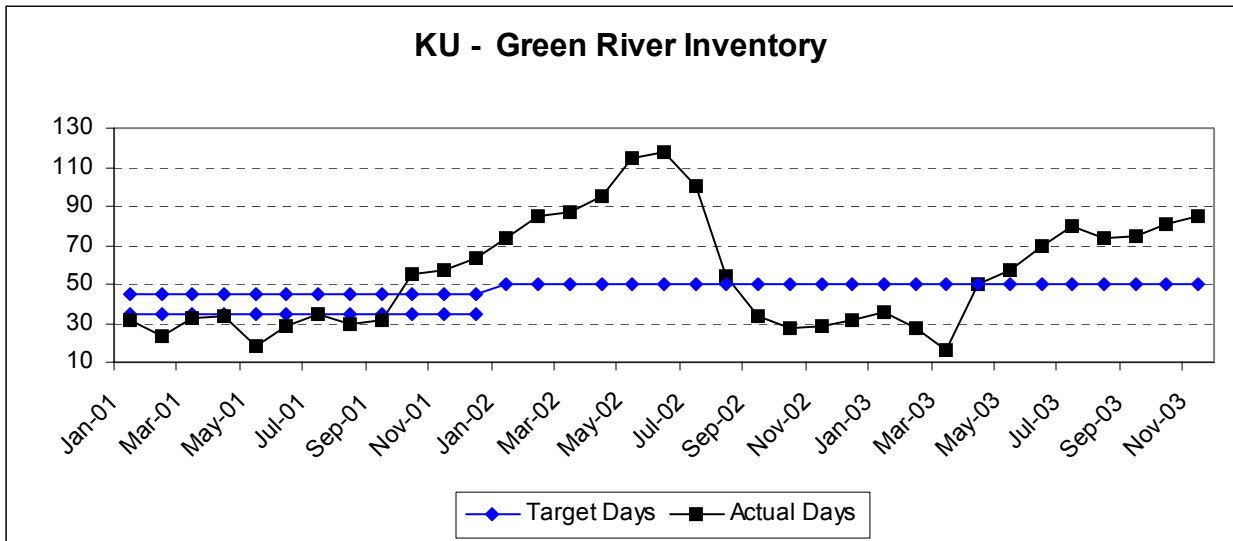
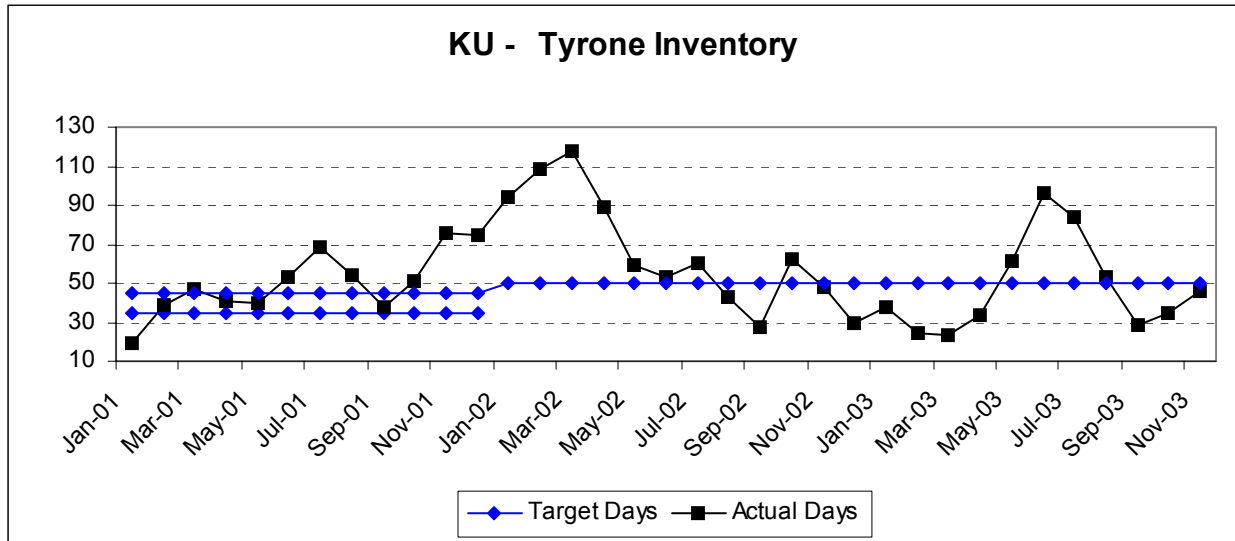


Figure IV.10



These charts illustrate the change in inventory targets that occurred at the beginning of 2002. It should be remembered that in the year 2001, the Fuels Department was experiencing a very tight coal supply market, and saw its coal inventories dip to unusually low levels. As mentioned earlier, it is not the purpose of this audit to engage in a retrospective examination of past fuel management practices. What is significant is what has been occurring more recently, in terms of new inventory policies that have been based on more thorough analysis, and on the Fuels Department’s ability to maintain coal inventories at or near specified targets. Liberty is comfortable with the new coal inventory targets established as a result of the referenced study.

The Fuels Department’s ability to maintain coal inventories at or near specified targets requires more background discussion. From pure appearances, it might look like the Fuels Department was not paying attention to overall system-wide coal inventories, and permitted these inventories to rise to 80 days of supply for LG&E, without significant corrective action for over 18 months. However there were a number of factors that contributed to this situation.²⁸ First, the Fuels Department was experiencing the AEI bankruptcy situation and was unsure of its outcome. The feeling was that additional coal supplies should be procured to ensure if deliveries were not obtained from AEI, LG&E would not run short of coal supplies. In the end, additional coal supplies were procured, AEI coal deliveries were resumed, and coal inventories rose.

The second factor at play was that the Fuels Department was anticipating a strike by the UMWA in 2002 and so bought additional coal from non-union mines. In the end, the strike did not occur, and coal inventories rose.

²⁸ Telephone discussion with Mike Dotson by Don Spangenberg on January 8, 2004.

The third factor at play was that the Utilities had just experienced an extremely cold winter when coal supplies had been drawn down to unusually low levels. Thus, as the Fuels Department looked at coal inventories there was the feeling that if another cold winter occurred in 2002, then additional supplies would be required. Additional coal supplies were procured, the winter was not as cold as anticipated, and coal inventories rose.

Finally, there was an unanticipated outage at the Cane Run Station in 2002 that caused coal inventories to rise. In this situation, the Fuels Department did defer some tonnage to 2003 in an effort to better manage coal inventories, but the overall effect was that this outage did contribute to some of the rise in inventory above the target level of 50 days.

In retrospect, Liberty feels that the inventory management actions of the Fuels Department in the 2002 and 2003 time period were understandable and reasonable. The general motivations of utility fuel managers are to avoid running out of coal at all costs, and to suffer the consequences of reprimands if reasonable actions that they have taken result in higher inventory levels than targets because of a combination of situations that they could not have anticipated. In many cases of inventory management, there are offsetting situations that tend to stabilize inventory at or near the intended targets. Such was not the case in 2002 and 2003 when multiple situations all contributed to inventory increases, with no offsetting factors.

Inventory Measurement

An important component of electric utility fuel management relates to the physical measurements of coal in inventory. Inventory measurements should be made on a regular basis, and the results of these measurements indicate the effectiveness of the measurements and controls on coal going into inventory, and coal leaving inventory. This is important because coal going into inventory is coal that the utility has paid for. Similarly, coal leaving inventory is coal that is burned in the generating station's boilers and to the extent that there are variations in measurement of coal burned, there will also be variations in the calculated efficiency of the generating station. If these efficiencies change, then there can be changes in the economic dispatch order of the generating station.

Typically each year, the physical measurements of coal in inventory at each generating station are compared to the book value of coal in inventory. If there are consistent trends in the variance when comparing book inventory and the physical inventory, it could indicate any number of problems in measuring coal going into inventory, in coal leaving inventory, with the survey process itself, or with preparation of the coal pile for the inventory measurement. Since the source of variances between the book inventory and the physical inventory could be numerous, this could represent uncertainty as to cash flow related to coal receipts, uncertainty as to appropriateness of accounting adjustments to book inventory values, or uncertainty as to generating station efficiency and the proper place of that station in the economic dispatch order. Whatever the source of any unusual variance between book inventory and physical inventory measurement, the root problem must be identified and corrected so that there is confidence in

cash flows related to coal receipts, confidence in accounting values for book inventory, and confidence in the generating station’s operating efficiency, and thus its place in the economic dispatch order.

There are two different methods for analyzing the variance between the book value of coal inventory and the physical inventory measurement. One way is to calculate the variance amount as a percentage of the amount of coal in book value inventory. This will be called the percent-of-pile method. A second way is to calculate the variance amount as a percentage of the amount of coal burned by the generating station in question. This will be called the percent-of-burn method. The results of these calculations can be dramatically different, as demonstrated in Figures IV.11 through IV.13 below.

The Fuels Department is responsible for managing the physical measurements of coal in inventory at each of the KU and LG&E generating stations.²⁹ Outside contractors are selected through a competitive bidding process, and these contractors conduct the physical measurements of coal in inventory, as supervised by the Fuels Department. The Fuels Department has a process for conducting these physical coal pile inventory measurements on an annual basis.³⁰ The results of these inventory measurements for the years 2001 through 2003 for each of the KU and LG&E generating stations are as follows.³¹

Figure IV.11 - 2001 Coal Inventory Survey

LG&E System						
Plant	Survey Tons	Book Tons	Variance Tons	Percent of Pile	Percent of Burn	Estimated Burn
Trimble County	234,757	233,046	1,711	0.73	0.11	1,555,000
Cane Run	174,610	182,349	(7,739)	(4.24)	(0.53)	1,460,000
Mill Creek	386,877	352,725	34,152	9.68	0.80	4,269,000
Total System	796,244	768,120	28,124	3.66	0.39	7,284,000
KU System						
Ghent High S	187,554	171,253	16,301	9.52	1.03	1,583,000
Ghent Low S	511,982	509,443	2,539	0.50	0.06	4,231,000
Ghent Total	699,536	680,696	18,840	2.76	0.32	5,814,000
Brown	200,236	179,321	20,915	11.66	1.23	1,700,000
Green River	100,911	89,829	11,082	12.34	2.11	525,000
Tyrone	26,464	30,155	(3,691)	(12.24)	(2.46)	150,000
Pineville	9,178	9,474	(296)	3.12	(0.46)	64,000
Total System	1,036,325	989,475	46,850	4.73	0.57	8,253,000

²⁹ Interview of Delbert Billiter by Don Spangenberg on December 3, 2003.

³⁰ Response to Data Request #29.

³¹ Ibid.

Figure IV.12 - 2002 Coal Inventory Survey

LG&E System						
Plant	Survey Tons	Book Tons	Variance Tons	Percent of Pile	Percent of Burn	Estimated Burn
Trimble County	421,432	435,675	(14,243)	(3.27)	(0.90)	1,583,000
Cane Run	239,317	223,294	16,023	7.17	1.11	1,444,000
Mill Creek	887,518	825,572	61,946	7.50	1.46	4,243,000
Total System	1,548,267	1,484,541	63,726	4.29	0.88	7,270,000
KU System						
Ghent High S	178,782	154,515	24,267	15.70	1.54	1,576,000
Ghent Low S	623,403	574,151	49,252	8.58	1.20	4,104,000
Ghent Total	802,185	728,666	73,519	10.09	1.29	5,680,000
Brown	364,111	331,680	32,431	9.78	1.91	1,698,000
Green River	35,725	28,968	6,757	23.33	1.29	524,000
Tyrone	10,865	17,051	(6,186)	(36.28)	(4.12)	150,000
Total System	1,212,886	1,106,365	106,521	9.63	1.32	8,052,000

Figure IV.13 - 2003 Coal Inventory Survey

LG&E System						
Plant	Survey Tons	Book Tons	Variance Tons	Percent of Pile	Percent of Burn	Estimated Burn
Trimble County	292,691	260,470	32,221	12.37	2.05	1,572,000
Cane Run	271,637	227,695	43,942	19.30	3.03	1,450,000
Mill Creek	546,295	460,342	85,954	18.67	2.02	4,255,000
Total System	1,110,623	948,507	162,116	17.09	2.23	7,277,000
KU System						
Ghent High S	214,179	206,824	7,355	3.56	0.47	1,565,000
Ghent Low S	474,452	457,666	16,786	3.67	0.41	4,094,000
Ghent Total	688,631	664,490	24,141	3.63	0.43	5,659,000
Brown	264,406	229,865	34,541	15.03	2.03	1,702,000
Green River	100,424	81,850	18,574	22.69	5.31	350,000
Tyrone	26,740	16,400	10,340	63.05	6.89	150,000
Total System	1,080,201	992,605	87,596	8.82	1.11	7,861,000

It is LG&E Energy's policy to adjust the book inventory each year to be equal to the physical inventory measurement for that year.³² While this is acceptable, some utilities do have a policy that there is a dead band and any inventory variances within this band do not result in adjustments to the book value for inventory.

As noted earlier, there are two methods for calculating the variance between the book value of inventory and the physical survey measurements of coal in inventory. Liberty prefers to use the percent-of-pile method. As can be seen from the figures above, this method results in greater percentage variances. Liberty feels that the purpose of variance analysis is to focus management attention on variations in inventory measurement, and not to mask these trends. Masking of the variance trends occurs in the percent-of-burn method since the resultant percentages are typically small because of the much larger denominator in the calculation.

Liberty feels that the purpose of inventory analysis is to bring LG&E Energy-wide management attention to inventory measurement trends so that appropriate investigative action can be taken. Liberty also feels that the current Utilities' approach to analysis of inventory measurements is driven by the Fuels Department, rather than incorporating the interests of all departments involved in the outcome of these inventory measurements. The Fuels Department believes that sources of problems related to weights for coal received, or of problems with the physical survey are very unlikely because of the attention paid to these two measurements. However, since there are so many possible explanations for changes in variances, impacting the interests of so many different departments within LG&E Energy, it is important that a broad-based approach to inventory variance analysis be taken.

The Fuels Department indicates that each individual shipment is weighed at least twice on independent scales, at the load point (supplier) and at the unload point (Utilities). Therefore, any variances outside of acceptable limits are identified and resolved. However, Liberty believes that the issue is a LG&E Energy-wide one involving many departments, including Accounting, Internal Auditing, Power Generation, as well as the Fuels Department, and that this aspect of inventory measurement must be examined from the perspective of each department. Therefore these results must be subjected to independent review by a broad-based internal LG&E Energy panel to determine if there are consistent biases that could be accumulating, even though individual measurements are within acceptable tolerances. For example, the Utilities receive coal by three different delivery methods. Such an internal LG&E Energy panel must be able to determine that there are no differences in handling coal weights for barge, rail or truck deliveries that could cause variances in coal receipt measurements.

The Fuels Department also indicates that considerable attention is given to the physical survey process, including checks on at least five aspects of the survey and its calculations. Nevertheless, Liberty believes that since so many departments within LG&E Energy have a stake in the outcome of physical survey measurements, then all departments must be included in an independent internal review process.

³² Ibid.

Examination of the variances indicates generally that the variances are positive more often than they are negative. This means that the physical survey measurements are reporting more coal in inventory than shown on the books of KU and LG&E. This then could mean one of three things. It could mean that on balance, the Utilities are putting more coal into inventory than they think they are, or that they are taking less coal out of inventory than they think they are. Or it could mean that there is a consistent bias in the results of the coal pile physical survey measurements. Ultimately, this could mean that there are uncertainties related to cash flows for coal delivered, uncertainties as to the actual book value of coal in inventory, or that station efficiency measurements might not be correct.

Analysis of inventory variance data from a statistical perspective would lead one to expect that in some years variances would be positive, and in some years they would be negative. Liberty believes that consistent variances greater than 3%, using the percent-of-pile method, should be investigated. The Fuels Department feels that consistent variances greater than 1½% to 2%, using the percent-of-burn method, should be investigated. Regardless of the method of variance analysis used, either the percent-of-pile method or the percent-of-burn method, Liberty's analysis of the Utilities' inventory variances indicated that the variance swings from year to year on the following stations/units are reasonable.

- Trimble County
- Cane Run
- Ghent Low Sulfur Coal

This examination also indicates that the variance trends, using the percent-of-pile method, for the following units are unusual, and should be further investigated to reach an understanding of the reasons for these variance trends.

- The Mill Creek variance is always positive, as much as 18% and never less than 7%.
- The Ghent high sulfur coal variance is always positive, as much as 15% and never less than 3%.
- The E.W. Brown variance is always strongly positive, as much as 15% and never less than 9%.
- The Green River variance is always strongly positive, as much as 23% and never less than 12%.
- The Tyrone variances swing wildly from negative 36% to a positive 63%.

Liberty notes that using the percent-of-burn method would change this listing by removing Ghent high sulfur coal variances as an item of concern. This does not change Liberty's belief that Ghent high sulfur coal inventory variances should also be examined.

6. Waste Management

The Fuels Department has a policy to find beneficial uses for coal combustion by-products in as many situations as possible.³³ One of the positions within the Fuels Department has specific responsibility for Industrial Coal Sales and By-Products.³⁴ This individual constantly seeks markets for by-products and arranges for contracts for sale of this material whenever possible. The shortest contract for by-products is 3 years; some gypsum contracts extend for 25 years. Gypsum (calcium sulfate) is a product of SO₂ scrubbers that use ground limestone to remove sulfur dioxide.

Following is a summary of the various ash disposal methods at the KU and LG&E generating stations:³⁵

LG&E

Mill Creek Bottom ash, mill rejects, some gypsum and some fly ash are wet sluiced to the on-site ash treatment basin. The rest of the fly ash is pneumatically transported to silos for eventual trucking and placement in the on-site landfill or marketed for use in cement production or concrete. Bottom ash is reclaimed, processed and beneficially used as utility trench backfill material. Gypsum is washed, dried and marketed for wallboard production and cement production.

Trimble County Bottom ash, mill rejects, some gypsum and most of the fly ash are wet sluiced to the on-site ash treatment basin. The rest of the fly ash is pneumatically transported to silos to be marketed for use in concrete. Bottom ash is reclaimed, processed and beneficially used as roofing shingle granules and blasting grit. Gypsum is washed, dried and marketed for wallboard production.

Cane Run Bottom ash, mill rejects, and some fly ash are wet sluiced to the on-site ash treatment basin. The remainder of the fly ash is blended with scrubber sludge and placed in the on-site landfill. The landfill is currently undergoing a vertical expansion to provide for additional on site storage of scrubber sludge.

KU

Ghent Bottom ash, mill rejects, and fly ash are wet sluiced to the on-site ash treatment basin. The ash treatment basin is currently undergoing a vertical expansion to provide for additional on site storage of ash. Gypsum is washed, dried and marketed for wallboard production.

³³ Interview with Kenny Tapp by Larry Koppelman on November 19, 2003.

³⁴ Response to Data Request #14.

³⁵ Response to Data Request #47.

E. W. Brown Bottom ash, mill rejects, and fly ash are wet sluiced to the on-site ash pond. There is no landfill at the E. W. Brown site. Some bottom ash has been used on an intermittent basis for testing as lightweight aggregate.

Green River Bottom ash, mill rejects, and fly ash are wet sluiced to the on-site ash pond. There is no landfill at the Green River site. Some reclaimed bottom ash has been used on an intermittent basis as structural fill material. Scrubber sludge is sluiced to a solids retention basin and the decanted water is recycled within the scrubber.

Tyrone Bottom ash, mill rejects, and fly ash are wet sluiced to the on-site ash pond. There is no landfill on the Tyrone site. Some reclaimed bottom ash has been used on an intermittent basis for road base material.

The following tables illustrate the revenues the company has received for marketing coal combustion by-products over the last three years, along with the tons of this material that has been sold:³⁶

Figure IV.14 - Revenues from Sale of Coal Combustion By-Products

	2001	2002	2003
KU	\$344,633	\$444,356	\$472,785
LG&E	\$456,894	\$341,247	\$281,549
Total	\$801,527	\$785,603	\$754,334

Figure IV.15 - Tons of Coal Combustion By-Products Marketed

	2001	2002	2003
KU	208,868	259,299	275,744
LG&E	847,575	924,730	780,877
Total	1,056,443	1,184,029	1,056,621

The Fuels Department has negotiated several agreements with vendors in order to improve the long term sales of coal combustion by-products. This explains the decline in revenues over this three year period. At the LG&E Mill Creek Station, portions of the fly ash sales revenue have been retained by the vendor so that the vendor might be reimbursed for a \$300,000 capital cost

³⁶ Response to Data Request #48

investment. Also at the Mill Creek Station, \$5.5 million for capital construction costs was received to convert the existing FGD system to produce wallboard-grade gypsum. A number of utilities have engaged in these FGD modifications in order to provide a marketable gypsum product. In return, the vendor will receive a minimum of 500,000 tons of gypsum per year under a ten year agreement. At the LG&E Trimble County Station, revenues from bottom ash sales are retained by the vendor until a \$70,000 capital cost investment is recovered.

7. Regulatory Compliance

Liberty compared the Fuels Department’s monthly Fuel Adjustment Clause (*FAC*) filings with the applicable regulations and found that these filings do comply with the regulations. Liberty also feels that these FAC filings provide for adequate disclosure of all necessary fuel transactions.

The applicable Kentucky regulations governing the FAC process are found in KRS 278.030(1), which states that “all rates received by an electric utility subject to the jurisdiction of the Public Service Commission shall be fair, just and reasonable.”³⁷ In accordance with KRS 278.030(1), 807 KAR 5:056, Section 1 addresses the FAC and permits an electric utility to immediately recover from its ratepayers increases in fuel costs without requiring a full regulatory rate proceeding. The fuel adjustments, however, are subject to later scrutiny by the Public Service Commission. Regulation 807 KAR 5:056, Section 1 permits electric utilities to establish FACs to adjust the rates to reflect changing fuel prices, and requires the FACs “provide for periodic adjustment per KWH (kilowatt hour) of sales equal to the difference between the fuel costs per KWH sale in the base period and in the current period.”³⁸ A mathematical formula³⁹ establishes the adjustment factor used to determine a customer’s monthly FAC charge, which appears as a separate line item on the customer’s bill. An electric utility is permitted fuel adjustments provided the regulatory standards are followed.

The regulatory standards of 807 KAR 5:056, Section 1 include guidelines for filing such fuel adjustment clauses. Liberty reviewed the Utilities’ filings for fuel adjustment to determine compliance with the associated standards.⁴⁰ The compliance review incorporated an analysis of documents received in response to Liberty Data Requests and filed with the Commission.⁴¹ Liberty reviewed the provided FAC documents and determined the filings, for the most part, do comply with the regulations outlined in 807 KAR 5:056, Section 1.

³⁷ <http://www.lrc.state.ky.us/kar/807/005/056.htm>

³⁸ 807 KAR 5:056, Section 1 (1).

³⁹ Adjustment Factor = $(F_m/S_m) - (F_b/S_b)$, where F is the expense of fossil fuel in the base (b) and current (m) periods; and S is sales in the base (b) and current (m) periods.

⁴⁰ Response to Data Request #2.

⁴¹ Response to Data Request #2.

Historically, information was inadvertently omitted from the initial FAC filings.⁴² The initial KU and LG&E data submissions, however, were subsequently supplemented, in a timely manner, to provide the relevant information required to conform with the standards.⁴³ Furthermore, responses to Commission interrogatories provide additional information to support the original filings.

Other reviewed instances found that KU failed to provide the Commission adequate written notice and explanation of purchases, and therefore failed to comply with 807 KAR 5:056, Section 1(7).⁴⁴ The Commission ruled that KU failed to exercise reasonable fuel procurement practices for the period May 1, 2001 to October 31 2001. The unreasonable fuel procurement practices resulted from KU's purchase of imported compliance coal from WKE. In order to reflect the unreasonably incurred fuel costs, the Commission ordered KU to reduce its actual monthly fuel cost for the period March to June 2003. All failures to comply with FAC regulations are noted for the record and fuel procurements adjusted appropriately to reflect such noncompliance.⁴⁵

The Commission has amended, altered, and clarified the FAC regulatory standards when warranted.⁴⁶ For example, the Commission's Order of June 1, 2000 (Case No. 98-426) concluded that off-system power purchases identified as "reserve margin purchases" cannot be recovered through the FAC. Additionally, the Commission Order dated May 17, 2002 stated "beginning in October 2001 KU and LG&E began filing additional schedules with monthly FAC reports that provide a more detailed view of their power transactions."⁴⁷ The Commission, in the same Order, now requires that these schedules be filed until further notice. Liberty's review concludes that KU and LG&E have responded to such changes by providing documents in compliance with the standards.

Due to misconstrued information related to purchased power costs outlined in 807 KAR 5:056, Section 1 (3), the Commission clarified the regulatory standards for the respective electric utilities.⁴⁸

Liberty's review concludes that KU and LG&E submit the FAC filings in a timely manner consistent with the regulatory standards. Currently, KU and LG&E appear to provide sufficient documents and supporting data to comply with the regulatory standards set forth in 807 KAR 5:056, Section 1.

⁴² Response to Data Request #2 (2000-498-A).

⁴³ Response to Data Request #2 (2000-498-A).

⁴⁴ Response to Data Request #2 (2000-497-B)

⁴⁵ Response to Data Request #2.

⁴⁶ Response to Data Request #2 (2000-497-A), Commission's Order of June 1, 2000 (Case No. 98-426).

⁴⁷ Response to Data Request #2(2000-497-A)

⁴⁸ Response to Data Request #2(2000-497-A)

C. Conclusions

1. The Fuels Department administers coal contracts in a satisfactory manner.

Responsibilities for fuel contract administration are well defined, appropriate systems are in place to administer fuel contracts, and the necessary data for this administration is available and properly used.

2. While the current process is accurate, the Company's handling of information on coal weights as measured at the generating stations could be made more efficient. *(Recommendation #1)*

While Liberty found that the information on coal weights as measured on scales at the generating stations was accurate, the process was inefficient, included multiple and repetitive data handling steps, and was not as automated as it could be. This inefficient process is due primarily to the fact that there are no instances on either the KU or LG&E system where coal weights are electronically fed into the CSMS directly from the scales themselves. The CSMS is capable of receiving such electronic input from scales as is done on some truck scale measurements at WKE. This experience at KU and WKE should be of considerable benefit to KU and LG&E as they seek ways to improve the efficiency of handling coal weight information at generating stations.

If KU and LG&E are able to adopt this electronic transfer of information directly from coal scales into CSMS, at the Ghent Station, for example, the following steps could be eliminated:

- One reading of an electronic digital meter;
- Three different manual entries of information either onto paper, or into computers;
- One manual tabulation of weight information;
- One comparison of printout information with manually read and written information;
- Two instances where information is hand carried from one point in the process to another.

Similarly, at the Mill Creek Station the following steps could be eliminated:

- Three manual transfers of data, either by FAX or hand carrying of paper;
- Two manual entries of information either onto reports or into a computer;
- Daily tabulation of barge report totals;
- Creation of a summary spreadsheet;
- Monthly tabulation of spreadsheet totals;
- Three cross-checks of information.

Liberty's concerns with these processes are that not only are they inefficient, but because of the multiple and manual handling of coal weight information, there are a number of opportunities for either reading or entry of incorrect information. Because of these possibilities, KU and LG&E have introduced steps of cross-checking in order to confirm that the weight information is correct. With more automated processes, these steps of cross-checking could be eliminated.

3. While the marking of coal samples taken at the generating station provides accurate information, the overall sample marking and handling process could be improved.
(Recommendation #2)

There are three issues related to marking and handling of coal samples. The first issue is that coal samples are marked with the identification of the coal supplier. It is common practice in electric utility coal sampling operations to camouflage the identity of coal suppliers in order to prevent improper handling of samples from certain suppliers during the process of transportation and analysis of these samples. Individuals given sufficient financial incentive could be persuaded to alter coal samples or coal sample analysis results. However the latter is less likely because of the automated processes at the Ghent System Laboratory.

The second issue related to handling of coal samples is that the format for marking these samples varies from generating station to generating station. These inconsistencies are due primarily to lack of standardization between the processes used earlier by KU and LG&E prior to the merger of their operations. Standardized sample marking provides for greater flexibility and efficiencies when transferring personnel among stations, and also provides for greater efficiencies in handling the sample information at the Ghent System Laboratory.

The final issue related to handling of coal samples is that they are not kept under lock and key, either at the generating stations, or during transit to the Ghent System Laboratory. Since samples are clearly marked with the identity of the coal supplier, as discussed in the first issue, open access to these samples creates the opportunity for a sufficiently motivated individual to select the precise sample that he is intent on altering. The open access to the coal samples during transportation to the System Laboratory is especially significant, since this transportation is provided under contract by an independent outside organization.

4. The Fuels Department has an effective process for monitoring supplier performance, and currently the performance of these suppliers is satisfactory.

The Utilities had bad experience in the 2000-2001 time period related to supplier performance that resulted in considerable focus, both internally and externally, on the fuel management activities of the Fuels Department. Liberty found that in the last several years, the Fuels Department has been quite effective in managing the fuel procurement process, and in particular the aspect of supplier performance. The responsibilities for monitoring this performance are clear, the monitoring systems are in place, and the data necessary for this activity is both accurate and available.

The Fuels Department has demonstrated through its handling of force majeure situations, contract renegotiations, delivery schedule variations and coal quality variations that it is attentive, and forceful in ensuring that the provisions of its coal contracts area enforced. Further indicators of this satisfactory approach to handling supplier performance is that there have been no contracts that had to be terminated by the Fuels Department, nor are there any open contractual issues related to supplier performance, other than bankruptcies that are always difficult for utilities to predict and manage.

5. Currently the Fuels Department is managing coal inventory in a satisfactory manner.

Recently, the Fuels Department has revised its coal inventory targets as a result of a detailed study that focused on all of the appropriate variables related to coal carried in inventory. Liberty feels that these current targets are appropriate, and found that the Fuels Department is now managing its coal inventories in a manner that holds the inventory at each generating station quite close to the intended target.

6. There are a number of instances where there are considerable and consistent variances between the amount of coal measured in inventory through physical surveys and the amount of coal carried on the books of the Utilities.
(Recommendation #3)

Analysis of inventory variance data from a statistical perspective would lead one to expect that in some years variances would be positive, and in some years they would be negative. Because of these normal variations, typically electric utilities consider variations within a band of plus or minus three percent acceptable. In fact, many electric utilities make no adjustments to the book values of coal inventory when variations are within this three percent band. While there are two methods used for analysis of inventory variances – the percent-of-pile method, and the percent-of-burn method - Liberty prefers to use the percent-of-pile method because it highlights variance changes more visibly.

Liberty’s analysis of the KU and LG&E inventory variances indicated that in general the variances are positive more often than they are negative. This means that the physical survey measurements are reporting more coal in inventory than shown on the books of KU and LG&E. This then could mean one of three things. It could mean that on balance, the Utilities are putting more coal into inventory than they think they are. This would indicate uncertainty as to the accuracy of cash flows associated with coal receipts. Or, this could mean that the Utilities are taking less coal out of inventory than they think they are. This would mean that station efficiency measurements might not be correct, and consequently that the station’s place in the economic dispatch order might not be correct. Finally, it could indicate uncertainty as to the actual book value for coal in inventory.

The inventory measurements of coal in inventory for Trimble County, Cane Run and Ghent low sulfur coal show reasonable variation based on comparisons of the amount of coal measured in

inventory through physical surveys and the amount of coal carried on the books of KU and LG&E. However, at all of the other generating stations, there are considerable and consistent variances that must be understood and explained. There are a number of steps in the process of accounting for coal received and coal burned. A number of these steps are manual and require using pencil and paper to record information. All opportunities for accidental, or deliberate, introduction of errors in this process must be identified, and well understood. Differences in handling coal weights for barge, rail or truck deliveries that could cause variances in coal receipt measurements, must be thoroughly investigated and understood.

All possible explanations for the causes of errors must be vigorously explored. At issue is the validity of cash flows for coal received, the accuracy of book values for coal inventory, as well as the efficiencies of the generating stations. Ultimately, the economic dispatch order of the generating station could be impacted.

Following is a summary of the approximate variations at the generating stations of concern:

- The Mill Creek variance is always positive, as much as 18% and never less than 7%.
- The Ghent high sulfur coal variance is always positive, as much as 15% and never less than 3%.
- The E.W. Brown variance is always strongly positive, as much as 15% and never less than 9%.
- The Green River variance is always strongly positive, as much as 23% and never less than 12%.
- The Tyrone variances swing wildly from negative 36% to a positive 63%.

7. The Fuels Department has a satisfactory program for seeking beneficial uses and sales of coal combustion by-products.

The Fuels Department has assigned responsibility for effective disposition of coal combustion by-products to a specific individual within the Department. This individual spends the majority of his time on issues of finding beneficial uses for these products, and in fact selling this material whenever possible.

The Department has a number of long-term contracts for sale of coal combustion by-products, and has included provisions that provide for either KU, LG&E or vendor modification of facilities in order to facilitate more effective disposition of this material. The value of the Department's program to sell coal combustion by-products is that these sales avoid incurring costs to handle the waste products.

While sales revenues for coal combustion by-products are not significant when compared to the funds expended for the procurement of the coal itself, the important point is that the Department has programs for effective use or sale of this material, and has demonstrated that it continues to seek additional uses and markets as well.

- 8. The Fuels Department is properly interpreting the requirements for its monthly FAC filings and is submitting these filings in accordance with the applicable regulations.**

Liberty compared the Fuels Department's monthly FAC filings with the applicable regulations and found that these filing do comply with the regulations.

- 9. Applicable regulations provide for adequate disclosure of all fuel transactions.**

Liberty evaluated the applicable regulations governing regular FAC filings and feels that these regulations provide for adequate disclosure of all necessary fuel transactions.

D. Recommendations

- 1. Develop new and improved procedures for handling of information on coal weights as measured on KU and LG&E scales. (Conclusion #2)**

The ideal solution to this deficiency in handling of coal weight information would be to modify as necessary the electronic outputs of KU and KG&E coal scales, and procure the necessary interface equipment in order that these signals can be fed directly into the CSMS. This would eliminate the multiple, redundant and inefficient processes now used at all generating stations. In order to accomplish this activity, KU and LG&E must evaluate the electronic outputs of each of its coal scale systems and determine the steps necessary to feed (if possible) this electronic information directly into CSMS. There will clearly be costs associated with such modifications, but it is Liberty's feeling that the long-term benefits of such new processes will outweigh the short term costs.

In the short term, KU and LG&E should modify the current procedures and streamline them, to eliminate the unnecessary cross-checking, and to eliminate any redundancies. Liberty recognizes that staffing situations are different from generating station to generating station, and that complete standardization of the process may not be possible. However, the costs and benefits of such procedural standardization must be included in KU's and LG&E's evaluation and revision of coal weight handling procedures and processes.

- 2. Revise the procedures for marking and handling coal samples to standardize this marking throughout KU and LG&E, to conceal the identity of the coal suppliers associated with these samples, and keep the samples under appropriate lock and key. (Conclusion #3)**

Standardization of coal sample marking is important in order to provide a more efficient and flexible process. This relates to elimination of the need for different training programs from station to station, and to provide for more ease in transfer of personnel among stations. In

addition, standardization provides for more efficient and accurate handling of coal samples at the System Laboratory.

A sample coding system should be developed that will permit identification of coal samples, but will obscure the identity of coal suppliers from any individual, either within KU/LG&E, or outside of KU/LG&E, that may be motivated to alter coal samples or coal sample results in some manner.

Most utilities keep coal samples under lock and key. A lock and key system for handling coal samples during storage and transportation is important to eliminate unauthorized access to coal samples, which could result in improper handling of these samples. This is especially important during the transportation process when samples are currently in the custody of an outside organization, with the possibility of unmonitored altering of the samples.

3. Immediately investigate and report to the Commission on the causes of the consistent trend in physical measurement of coal pile inventories, which has shown that, for the last three years, the measured inventory has been significantly more than the book inventory at a number of generating stations. (Conclusion #6)

The results of KU and LG&E physical measurement of coal pile inventories at a number of their generating stations over the last three years, using the percent-of-pile method of inventory variance analysis, have not produced the kind of results that would have been expected from a purely statistical point of view. Typically, variations both plus and minus within a band of three percent variance is considered acceptable.

Variations for Ghent high sulfur coal inventory, and at Mill Creek, E. W. Brown, Green River, and Tyrone Stations display a consistent trend where physical measurements are greater than book values, and by considerable amounts. Therefore, KU and LG&E should immediately launch an investigative program to determine the possible causes for this consistent trend in measurement variations, and take the appropriate corrective action. All opportunities for accidental or deliberate introduction of errors in this process must be identified, and well understood. All possible explanations must be vigorously explored.

Liberty would recommend formation of a multi-department LG&E Energy task force to attack this problem. The task force should include representatives of any department, including internal auditing, involved in coal inventory determinations.

In the final analysis, coal inventory levels are the result of the adequacy in determining the material balance between coal flowing into inventory, and coal flowing out of inventory. Issues for LG&E Energy to investigate should include: (a) methods of scale calibration; (b) scale maintenance procedures; (c) methods of recording and reporting quantities of coal received, including differences associated with and between barge, rail and truck delivery methods; (d) methods of determining material balances of coal flows into and out of inventory; (e) physical

inventory measurement techniques; (f) any changes in any associated procedures over time. After completion of its investigative program, KU and LG&E should report the results of their findings to the Commission. The results of these inventory measurement examinations will determine whether or not adjustments are appropriate. Any such determinations should not be made until the conclusion of LG&E Energy's investigations.

V. Affiliate Relations

A. Scope

This chapter addresses the following topics:

- Identification of Affiliate Requirements
- KU/LG&E Compliance with Requirements
- Applicability of Normal Acquisition Controls
- Costs of Fuel
- Profitability of Sales to Affiliates
- Comparison of Contract Terms with Purchases from Non-Affiliates.

B. Background

The Commission's Request for Proposals (RFP) for this audit included the following statement that specifically addressed the subject of affiliate relations:

The Commission ordered a focused audit of KU's fuel procurement functions and structure, including the organizational structure of KU's fuel procurement management. The Commission also found that, given the joint nature of KU's and LG&E's fuel procurement functions along with the close integration within LG&E Energy's fuel procurement activities, the audit should also encompass the fuel procurement function and structure of LG&E and LG&E Energy.

And the RFP also said that:

The overall objective of the audit is to examine all operational and managerial aspects of the fuel procurement functions of KU and LG&E, including the organizational structure and the operational interrelationship of fuel procurement management among LG&E Energy, KU and LG&E.

The RFP also included the following on specific areas of inquiry for this audit:

- *Appraise the organizational separation of regulated and non-regulated affiliates in relation to the fuel procurement function*
- *Review the Companies' compliance with all applicable Kentucky and Securities and Exchange Commission requirements for affiliate transactions focusing only on the Companies' fuel procurement practices*

To address the Commission's issue areas, it was necessary for Liberty to identify the field of potential affiliate relationships in the Utilities' procurement of fuel. Liberty found two areas of

potential affiliate relationships in the area of fuel procurement: E.ON's ownership interest in a coal company, RAG AG, and LG&E Energy LLC's (*LG&E Energy*) ownership of WKE. These relationships are described below.

The two utilities that the Kentucky Public Service Commission regulates, and which are the focus of this audit, are KU and LG&E. They are owned by the holding company LG&E Energy Corp., which was formed in 1989. LG&E Energy is now owned by E.ON AG, a large international company. A more complete description of these relationships and their history is contained in Chapter I, Organization, Staffing and Controls. Effective December 30, 2003, LG&E Energy Corp. transferred its assets and liabilities and merged with and into LG&E Energy LLC, a Kentucky limited liability company.

RAG AG is owned by four large companies, including E.ON.¹ RAG AG has worldwide annual revenues of \$15 billion. In 1999 RAG AG acquired coal-mining interests in the United States, operating as RAG American Coal Holding, Inc. (*RAG*). RAG produces more than 70 million tons of coal annually in the United States from mines in West Virginia, Pennsylvania, Indiana, Illinois, Colorado, Wyoming, and Utah.² As such, it could be a supplier of coal to KU's or LG&E's power plants, and in fact, as described below, RAG was a prospective vendor to the Utilities.³

LG&E Energy's direct subsidiaries are the utilities LG&E and KU, a foundation, LG&E Marketing (mostly wound-down, but whose purpose was to sell the output of the LG&E Energy generation assets such as those owned by KU, LG&E, and WKE), and LG&E Capital, whose primary operation is WKE Corp., which is the company that owns WKE and a related company.⁴

WKE is the LG&E Energy subsidiary that operates the power plants that Big Rivers Electric Corporation owns. These plants include Reid (130 MW), Coleman (455 MW), Green (454 MW), and Wilson Unit No. 1 (420 MW) for a total of 1,459 MW. Through its lease with Big Rivers, WKE also operates two units (312 MW total) in Henderson Municipal Power and Light's (HMP&L) Station Two plant.⁵ WKE uses about 5 million tons of coal annually, while the Utilities use about 15 million tons of coal annually.⁶

In 1998, Big Rivers leased its power plants to an affiliate of LG&E Energy LLC (Western Kentucky Energy Corp.) and assigned its rights to operate Station Two generating station of HMP&L and to utilize the excess energy from that station to another affiliate of LG&E Energy LLC (WKE Station Two, Inc.), in each case for 25 years. Under a related power purchase agreement with Big Rivers, a separate affiliate of LG&E Energy LLC (LG&E Energy Marketing Inc.) has several important obligations, including the requirement to supply Big Rivers with

¹ "RAG Considering Sale Of US, Venezuelan Coal Operations," Dow Jones News Service, December 1, 2003.

² RAG American Web site.

³ Response to Data Request #67.

⁴ Response to Data Request #11.

⁵ Big Rivers annual report 2002.

⁶ Audit kickoff meeting, November 18, 2003.

certain amounts of electricity for its three member cooperatives (originally four but two merged) at prices described in the power purchase agreement. LG&E Energy Marketing Inc. also has commitments to provide certain amounts of power for ultimate resale to two large aluminum smelters. The energy required to meet these commitments is generally provided by the generating stations being operated by the affiliates of LG&E Energy Marketing Inc., as described above. After these commitments are fulfilled, LG&E Energy Marketing Inc. can generally sell any excess energy produced by those generating stations.⁷

Coal is the dominant fuel that the WKE plants use. The sulfur content of the coal is usually in the range of 2 to 4.5 percent, and the coal comes from Kentucky and Indiana.⁸

The function of procuring and managing fuels and combustion by-products is managed for KU and LG&E, as well as WKE, by the Fuels Department in LG&E Energy Services Inc. (SERVCO). The description of the organization of the Fuels Department in Chapter I shows how the Manager, Fuels Strategy and Procurement for WKE is a WKE employee. SERVCO started operations on January 1, 2001, is owned by LG&E Energy, and provides services to other LG&E Energy subsidiaries.⁹

There are Utility Service Agreements to which KU, LG&E, Powergen, LG&E Marketing, and SERVCO are parties, and which generally describe their mutual obligations and refer to the LG&E Energy cost-allocation manual (CAM).¹⁰ The CAM provides general guidance to LG&E Energy personnel about how costs are assigned between entities who benefit from the services that SERVCO provides. This topic is also covered in the recent Commission sponsored ESM audit that ended in 2003.

KU and LG&E's costs for the Fuels Department were \$1.4 million in 2001 and \$1.8 million in 2002. The budget for 2003 was \$2.0 million. The largest component of these costs was labor.¹¹ The costs are split about 50-50 between KU and LG&E.¹² WKE's costs for fuels procurement were \$1 million in 2001, \$1.4 million in 2002, and the budget for 2003 was \$1.3 million. The figures for WKE are a combination of charges from the SERVCO Fuels Department and the direct costs of WKE employees who perform fuels-procurement functions and are part of WKE's organization.¹³ The costs of the SERVCO Fuels Department are directly assigned to one of the three companies when that can be done, and when costs are allocated, the *contract ratio* is used. The contract ratio is the sum of the physical amounts of fuel delivered under contracts, calculated for each company as a ratio of all companies and kept as a running 12-month calculation.¹⁴

⁷ LG&E Energy Corp. Form 10-K for 1998.

⁸ LG&E Energy Corp. Form 10-K for 2000 and 2001.

⁹ Response to Data Request #11.

¹⁰ Response to Data Request #59.

¹¹ Response to Data Request #62.

¹² Response to Data Request #72.

¹³ Response to Data Request #62 and personal communication with C. Pfeiffer, December 17, 2003.

¹⁴ Response to Data Request #59.

1. Identification of Affiliate Requirements

The Commission's approval of the merger of LG&E Energy and KU included the companies' commitment to continue to allow the Commission to have access to the books and records of its affiliates and subsidiaries. This is the first affiliate-relations requirement.

Next, LG&E Energy is part of registered holding company under the Public Utility Holding Company Act of 1935, often referred to as the PUHCA. The U.S. Securities and Exchange Commission (*SEC*) has regulatory authority over the transactions and relationships between SERVCO, the company that provides services to the companies that make up LG&E Energy, and other subsidiaries in the E.ON holding-company system. The acquisition of LG&E Energy by Powergen plc caused LG&E and KU to become part of a registered holding company. The Commission's decision in Case No. 2000-095, in which the Commission approved of the acquisition of LG&E Energy by Powergen plc, included a requirement that LG&E Energy's accounting system and cost-allocation practices present utility and non-utility costs separately and prevent cross-subsidization. The SEC generally requires that transactions between subsidiaries of a holding company be at fully-distributed cost.¹⁵ Powergen plc, subsequent to its acquisition of LG&E Energy, was renamed to Powergen Ltd.

In its 2000 Regular Session the Kentucky General Assembly passed House Bill 497 which became effective on July 14, 2000 and has specific requirements on cost allocations, affiliate transactions, and conduct for relationships between regulated utilities and their non-regulated affiliates. In summary, the Kentucky Revised Statutes 278.2201, 278.2203, 278.2205, 278.2207, 278.2209, 278.2211, 278.2213, 278.2215, and 278.2219 require that utilities not subsidize their non-regulated affiliates, have separate accounting for all subsidiaries, report their costs in accord with the Uniform System of Accounts, allocate costs using the fully-distributed cost method or follow SEC or FERC requirements or use tariffed rates, maintain a cost-allocation manual, and follow certain enumerated rules on marketing and customer information and treatment.¹⁶

Finally, the Federal Energy Regulatory Commission (FERC) also requires that sales from a non-regulated affiliate to a utility be at the lower of cost or market, and that the prices for the opposite transaction be at the higher of cost or market price.¹⁷ As part of a filing with the SEC, Powergen said that when the FERC and SEC rules were at odds that it would not undertake transactions that fell into that category.¹⁸

Liberty used the requirements described above to guide the investigatory work in this part of the audit.

¹⁵ Response to Data Request #58.

¹⁶ Response to Data Request #58.

¹⁷ Response to Data Request #58.

¹⁸ Response to Data Request #58.

2. *KU/LG&E Compliance with Requirements*

This topic is concerned with the pricing of the goods and services provided between the Utilities and their non-regulated affiliates. The rules for this are generally described above. Liberty's conclusions regarding the pricing of goods and services are described below.

Also, if assets associated with fuel procurement have been transferred, certain rules would apply, but that was not an issue for this audit.

3. *Applicability of Normal Acquisition Controls*

Liberty expects that related companies in a utility-holding company will not depart from their usual rules when conducting transactions between affiliates, including those rules that apply to procurements from non-affiliates or are spelled out in a CAM. This topic also includes organizational issues, and especially whether the same people make acquisition decisions for regulated utilities and non-regulated operations. Liberty covers this topic both in Chapter I, Organization, Staffing and Controls, and below.

A fundamental rule governing affiliate relationships is that operating managers should not have decision-making responsibility and authority for both regulated and non-regulated operations. Underlying this rule is the philosophy that separation of these responsibilities into two separate positions, or departments, will reduce any opportunity for decisions that could result in cross-subsidization of a non-regulated business by the customers of a utility.

The fuel procurement recommendations for the regulated utilities of KU and LG&E are made by the Manager, LG&E & KU Fuels. This Manager works exclusively on fuel procurement and fuel management matters for KU and LG&E, and does not interact with the Manager who has similar responsibility for WKE. Similarly, the fuel procurement recommendations for the non-regulated utility WKE are made by the Manager, Fuels Strategy and Procurement for WKE. Likewise, this Manager deals exclusively with fuel procurement and fuel management for WKE, and does not interact with the Manager who works on LG&E and KU fuel matters.

However, Liberty's concern with this arrangement is that actual fuel procurement decisions for both of these entities are made by the individual to whom both of these Managers report, the Director of the Fuels Department. The supervision of the fuel-management activities of both the Utilities and WKE is the responsibility of one individual at the Director level, a relatively high level in the corporate organization. This individual's primary responsibility is managing and leading the fuel-procurement function, including developing, implementing, and communicating strategy. While the Managers report to the Director, the decision authority of the Director is not greater than that of the Managers. Therefore, if a transaction (such as entering into a long-term contract) exceeds a Manager's authority to commit KU or LG&E, the decision-making authority would be at the corporate-officer level (see Chapter I for more discussion of approval

authorities). The hierarchy of these reporting relationships is as follows:

Chief Executive Officer
Senior Vice President Energy Services
Senior Vice President Energy Marketing
Director, Corporate Fuels and By-Products (Fuels Department)
Manager, LG&E and KU Fuels, and Manager, WKE Fuels

Responsibility for fuel procurement decisions for both regulated and non-regulated entities must eventually come together at some point in the organization. It is Liberty’s opinion, however, that this point of convergence should come at a more senior level in the organization, that is after separate Director level decision-making has been made. The primary responsibility for fuel-procurement and fuel-management decisions should be assigned to the highest-level position who has responsibility for only one side of the business or the other – regulated or non-regulated – but not both.

It also concerns Liberty that in the Administration Section of the Fuels Department, decisions are being made contemporaneously for both KU/LG&E and WKE by the Manager of the Section. Similarly, personnel in this Section are contemporaneously handling fuel data and fuel cost information for both KU/LG&E and WKE. These regulated and non-regulated activities should be more distinctly separated by changes in organizational structure.

4. *Costs of Fuel*

This topic refers to the prices for fuel charged by a non-regulated affiliate when it is a supplier to a utility. Liberty addresses below some instances in which such a transaction occurred, beyond the sale of coal by WKE to KU that has already been investigated by the Commission.

5. *Profitability of Sales to Affiliates*

This topic is a corollary to the previous one, as rules for sales by non-regulated companies to utilities generally dictate that such transactions should be priced at the lower of market price or fully-distributed cost. Such a sale should not advantage a non-regulated affiliated entity to the detriment of the utility purchaser when a sale transaction is done in either direction. The Kentucky statutes call for this approach: “Services and products provided to the utility by an affiliate shall be priced at the affiliate’s fully distributed cost but in no event greater than market or in compliance with the utility’s existing USDA, SEC, or FERC approved cost allocation methodology,” and “A utility shall not subsidize a nonregulated activity provided by an affiliate or by the utility itself,” and “Nothing in this section shall be construed to interfere with the commission's requirement to ensure fair, just, and reasonable rates for utility services.” As noted directly above, Liberty’s audit work covered this eventuality, and is described below.

6. Comparison of Contract Terms with Purchases from Non-Affiliates

This topic again relates to transactions between utilities and their non-regulated affiliates, and covers the situation where enough transactions are conducted that the relationship between a utility and its non-regulated affiliate is similar to, or should be similar, to that of a third-party vendor. In such an event Liberty would expect that the terms and conditions that apply would not be more favorable to a non-regulated affiliate than those that would apply to a third-party vendor. This situation has not applied to LG&E and KU's relationships with non-regulated affiliates, as described in more detail in Conclusion #3.

C. Conclusions

1. The significant potential for activities in the area of affiliate relations affecting fuel procurement for LG&E and KU are those that could arise because of the existence of WKE.

RAG AG has announced that it may soon sell its interest in its American subsidiary, RAG American Coal Holding, Inc. (RAG).¹⁹ If and when that occurs, RAG's business would not present opportunities for affiliate relationships with KU or LG&E. The only remaining opportunity for significant relationships between LG&E and KU and their non-regulated affiliates in the area of fuel procurement and management would involve WKE only. This is simply because WKE's business is virtually identical to a large part of the business of the regulated utilities KU and LG&E - generating electricity in Kentucky using coal as the primary fuel.

2. While WKE and KU/LG&E have had few transactions with each other, LG&E Energy's record keeping of the transactions was incomplete in one instance for a relatively small transaction. (Recommendation #1)

There were three transactions between either utility and WKE during the past 3 years.²⁰ The first transaction was WKE's sale of Polish coal, which the Commission investigated, resulting in the decision 2000-00497-B. Aside from that transaction and SERVCO's provision of fuel-procurement and fuel-management services to the three companies, the only affiliate relationships between WKE and LG&E or KU were the two remaining transactions, which LG&E Energy disclosed to the Commission in its FAC filings, and which Liberty describes below.

The second transaction was WKE's sale of 134,000 tons of coal to LG&E in January and February 2001 for use at the Trimble County plant.²¹ LG&E Energy provided Liberty with

¹⁹ "RAG Considering Sale Of US, Venezuelan Coal Operations," Dow Jones News Service, December 1, 2003.

²⁰ Response to Data Request #44.

²¹ Response to Data Request #75.

documentation that showed that this sale complied with a key rule of the relations between utilities and their non-regulated affiliates. To be specific, the sale was done at a price that was no more than—and in fact, equaled—WKE’s total cost. In this case, WKE’s total cost included the price it paid to its vendor for the coal, the costs of transportation, and carrying charges that covered WKE’s cost of money that was tied up for the transaction.

The third transaction was WKE’s provision of barge transloading service for KU during the period July 2001 through April 2002. WKE charged KU \$0.75 per ton for the transloading.²² LG&E Energy had no documentation that supported the development of that price, but it did provide documentation that showed that recent market prices for transloading services were higher than \$0.75 per ton. LG&E Energy fuel-procurement personnel authorized the deal at that price because experience with other, similar deals indicated that it was a reasonable price.²³

The Fuels Department was able to reconstruct the second transaction in a reasonably complete manner, but it had no documentation that supported the third transaction. It is possible that because these transactions were of relatively small consequences to the companies involved that there was no contemporaneous recording of the details of the transactions. Nonetheless, good practices in the area of documenting affiliate relationships would have helped assure that it would have been easy to find full documentation supporting the transactions, and in particular their pricing bases, and their rationale.

3. Liberty found no evidence that LG&E Energy took advantage of the Utilities’ vendor relationships to benefit WKE, or that it showed any preference to RAG in dealing with that affiliated coal company.

Liberty’s review of the vendor relationships of the Utilities and WKE revealed the following:

- The price of the coal from WKE’s suppliers is not appreciably different—either way—than the prices of the common suppliers who sell to KU and LG&E;
- The common contracts – (contracts with the same coal companies) – between WKE and this group of suppliers contain terms and conditions that are generally tougher on the suppliers than the terms and conditions in comparable contracts between LG&E/KU and those same suppliers;
- Liberty’s testing of invoices against contract terms and conditions showed that suppliers gave no preference to WKE;
- There were no problems of procurements from affiliated coal producers; see the discussion below of the RAG case;²⁴
- The Utilities and WKE had no suppliers of transportation services in common;
- The Utilities and WKE had no vendors of combustion by-product services in common.²⁵

²² Response to Data Request #75.

²³ Personal communication with M. Dotson, December 17, 2003.

²⁴ Response to Data Request #66.

²⁵ Response to Data Request #74.

The impetus for the Commission to order this focused management audit of the fuel-procurement functions of KU and LG&E was the Commission’s investigation of a sale of coal by WKE, a non-regulated subsidiary of LG&E Energy that is in the business of generating electricity in Kentucky, to KU, a regulated utility.

LG&E has publicly disclosed a few other transactions in recent years between the regulated and non-regulated companies involving fuels in the Utilities’ FAC filings. Liberty’s audit work focused on evaluating whether those transactions complied with government regulations about affiliate relationships in utility-holding companies.

Beyond those transactions is the possibility of cross-subsidization of non-regulated operations through transactions or affiliate relationships that would not include transactions that should be disclosed. It is important to note that there have been no allegations that LG&E Energy has engaged in any activities that could result in such relationships. In the interest of completeness, Liberty undertook a series of tests of transactions and relationships to provide assurance to the Commission that the presence of non-regulated affiliates of KU and LG&E did not cause any cross-subsidization of those non-regulated affiliates, and therefore that the controls, both through processes and the behavior of management, prevented such cross-subsidization or even the appearance thereof. This effort was also designed to fulfill several requirements of the RFP pertaining to compliance with applicable Kentucky and SEC regulations, and procurement of coal “to ensure a low cost and reliable coal supply.”²⁶

Liberty’s analysis took three separate paths, as described in the following paragraphs:

First, Liberty analyzed the pricing basis of the second and third disclosed transactions between WKE and the Utilities, as discussed in Conclusion #2 above. The second transaction was LG&E’s purchase in February 2001 of 134,000 tons of high-sulfur coal sold for the Trimble County Station. The third was barge-unloading service (84,000 tons of coal for KU’s Green River Station). The objective of these reviews was to make sure that WKE priced those transactions to the Utilities at less than the price that would have been obtained in the market and no more than WKE’s fully-distributed cost. The overall objective was to assure that these transactions complied with the applicable rules on transactions between utilities and their non-regulated affiliates.

In addition, a few shipments of coal to LG&E/KU were handled through Energy Dock, an entity owned by WKE.²⁷ Liberty examined these transactions to assure that the entire transaction of coal procurement, including transportation, was made on a least-cost basis, and that the ownership of Energy Dock by WKE did not influence the award of this business to the selected coal supplier. Liberty examined these transactions in detail and concluded that all such procurements were made on the basis of selecting that coal supply and associated transportation

²⁶ RFP scope of work, item #2.

²⁷ Response to Data Request #69.

mode that resulted in the delivery of the lowest cost coal to the selected power generating station.²⁸

Second, Liberty analyzed the cost of coal sold to KU's and LG&E's plants in the cases where the producers were owned by the same companies that were providing coal to WKE's plants. This analysis served the dual purpose of providing a review of a sampling of procurements that showed how LG&E Energy conducted itself in undertaking these procurements, as well as the original purpose of being a major part of Liberty's analysis of the relationships between WKE and KU/LG&E. This analysis had these parts, as follows:

- A comparison of the pricing and contractual terms of the contracts and/or spot purchases of coal that LG&E Energy made on behalf of KU and/or LG&E in those instances where WKE also was buying coal from the same mining company and/or coal-sales company. This analysis entailed comparing the contracts or documents for spot purchases along the dimensions of quantities shipped, coal quality, mine location, and when the procurement was made final. The objective of the analysis was to check to see whether, to the extent valid comparisons could be made, LG&E and/or KU were paying more than WKE for coal that was similar in type and vintage.
- A review of the internal (to LG&E Energy) documents that Fuels Department personnel used to gain the approval of LG&E Energy's senior management for contracts or spot purchases from common suppliers. The purpose of this review was to make sure that the documentation of the deals that LG&E Energy's senior managers approved had no indication that WKE would be favored because of deals between it and vendors in common with KU and/or LG&E. This review was Liberty's examination of the Award Recommendation Letters and backup documentation associated with the deals where WKE and KU/LG&E had vendors in common.²⁹
- A review of most of the purchases that WKE and LG&E and/or KU made from vendors that the three companies had in common in 2003. Liberty's audit work on purchases followed the comparison of the terms and conditions of the contracts. Liberty checked that the invoice amounts that LG&E Energy approved for coal received did not depart from the terms and conditions of the agreements. (Liberty would have conducted analyses similar to the those described above of transportation or by-product-disposal agreements with vendors common to LG&E and/or KU and WKE, but there were no such common vendors and hence no agreements and transactions to analyze.)³⁰

The third analysis that Liberty undertook was to make sure that RAG received no business from either KU or LG&E that it did not deserve. Said another way, Liberty tested the relationship

²⁸ On-site examination of procurement records by Don Spangenberg on December 3 and 16, 2003.

²⁹ Response to Data Request #61, and on-site data review by Don Spangenberg on December 3 and 16, 2003.

³⁰ Response to Data Request #61.

between RAG and the LG&E Energy Utilities to determine whether it received preferential treatment compared to other coal companies.

RAG bid on four different solicitations issued by the Fuels Department during the period from 2001 through 2003. Liberty reviewed each of these four bids by RAG and determined the following:³¹

- In the solicitation entitled 03-01, RAG coal offered was not price competitive, and thus no procurement was made from RAG;
- In the solicitation entitled 02-02, RAG coal was price competitive, but the solicitation was being used for the purposes of obtaining budget data, and also for the purpose of obtaining coal market pricing information for an upcoming contract renegotiation with Arch Minerals. The Fuels Department was obligated to renegotiate an existing contract with Arch, and the subject solicitation provided the necessary information to successfully accomplish this renegotiation;
- In the solicitation entitled 03-03, RAG’s bid was the second lowest price, but RAG held the offer open for almost two months *less than* the date requested in the solicitation. Subsequently, the Fuels Department asked outside counsel whether RAG was an affiliate and, if so, for guidance on whether the bid could be accepted. Outside counsel’s investigation determined that RAG was an “affiliate” under the SEC’s rules and initially indicated, given the time constraints, that the transaction was permissible if it was executed at RAG’s cost and if it was necessary to meet a utility’s emergency. For these reasons the RAG offer was not pursued at that time. Later, after RAG indicated a desire to do future transactions, the Fuels Department requested a more detailed analysis from outside counsel. This analysis showed that procurement from RAG “appeared permissible”, as long as the coal was actually produced by RAG, and not being brokered by RAG. Because time had expired on RAG’s original bid, the Fuels Department was not able to take advantage of this favorable opportunity;
- In the solicitation entitled 07-03 for spot coal, RAG coal was very favorably priced and could have been procured on the basis of lowest delivered cost. However, the coal offered was compliance coal from Colorado for Ghent Units #2, #3 and #4, and these units were currently burning both PRB coal, and Eastern compliance coal, and were also testing new compliance coal from Indiana. Thus, the Fuels Department made the decision not to complicate fuel logistics at Ghent by the addition of yet another coal to the mix for just a spot procurement, especially because this Colorado coal would require a test burn. Thus the RAG coal was not procured – not for affiliate relations related issues, but because of generating station logistics as assessed by the Fuels Department.

Liberty found that because of the uncertainty about the propriety of accepting a bid from an affiliate for the 03-03 solicitation, the SERVCO fuel-procurement personnel properly delayed further negotiation with RAG and, upon initial advice from outside counsel, declined to pursue

³¹ Response to Data Request #67, and on-site examination of procurement records by Don Spangenberg on December 3, 2003.

further negotiations. In response to further inquiries by RAG concerning future potential transactions, and no longer encumbered by time constraints, the Fuels Department requested and received a more detailed analysis from outside counsel. While KU proceeded with due caution before attempting to enter the transaction, KU was not able to buy coal at a lower price than it eventually did, but the difference in price was relatively small, *i.e.*, a few cents per ton on about 60,000 tons of coal.

4. LG&E Energy still hasn't sufficiently separated the procurement functions for the Utilities and WKE. (Recommendation #2)

In its decision in Case No. 2000-00497-B the Commission made clear its concerns about the vesting of procurement authority for regulated and non-regulated operations in the same individual when it said:

“As currently designed, significant fuel procurement authority for LG&E Energy’s regulated and non-regulated operations is vested in the same person. As clearly demonstrated by the case at bar, this combination represents a threat to the integrity of KU’s fuel procurement process.”

Further, in an opinion attached to the order for this case, it was made clear that:

“...extremely concerned that KU purchased coal from a non-regulated affiliate. There must be a separation of some functions between regulated and unregulated companies. In my opinion, the purchase of coal for regulated and nonregulated affiliated entities must be made by two different people with complete separation. ... should never have been in the position of purchasing coal for both regulated and unregulated producers of electricity in Kentucky”

As described in detail in Chapter I, Organization, Staffing and Controls, as well as above in this Chapter, the Director of the Fuels Department still manages the two separate Sections responsible for fuel procurement for both LG&E/KU and WKE. It is troubling to Liberty that the primary level of decision-making and management of fuel activities for both the regulated and the non-regulated entities is made by one person, the Director of the Fuels Department. It is also troubling that within the Fuels Department there is a common Administration Manager, with supporting staff, who handles financial information for both the regulated Utilities and WKE. Also within the Fuels Department there is a common Mining Engineer and a common person in charge of disposing of by-products. These individuals serve both the regulated Utilities and WKE.

All of these people work in the same office space, and although LG&E Energy put up walls and doors to separate the space of the people who work only for the Utilities from the rest of the Department, all of these people work on the same office floor. Access to this Utilities-only space is not presently controlled in any way. This physical separation is an improvement, but it does

not separate the people in the work location by floors and, more important, they all report to the same Director.

On the other hand, Liberty also believes that even having two separate procurement departments would not be perfect assurance that there will be no problems. In truth, because two such separated departments will ultimately meet at the level of some executive, nothing in the way of separating the functions will address the situation in its entirety. What counts is how personnel actually conduct themselves, and the attitude of these people toward proper conduct in the area of affiliate relations.

During extensive interviews on this subject, Liberty observed that in the Fuels Department there is a high level of awareness as to the need for appropriate conduct in the area of affiliate relations. Personnel who work for the regulated Utilities indicated that they are careful not to discuss fuel-related issues with individuals who work for WKE. They indicated that they clearly understood that competitive information was not to be shared between these two entities.

Finally, Liberty is impressed with the capability and the philosophy of the current Director of the Fuels Department and feels that as long as this individual is present and responsible for these activities, these traits will ensure appropriate departmental behavior in the area of affiliate relations.

5. LG&E Energy is overly cautious in avoiding the appearance of improper affiliate relationships.

Liberty makes the following points about LG&E Energy's avoidance of activities that might raise questions about the relationships between the Utilities and their non-regulated affiliates:

- There have been no sales of fuels by affiliates, such as companies owned wholly or in part by LG&E Energy, Powergen, and E.ON, to LG&E and KU, other than the three small sales discussed in this chapter.³²
- The various affiliate rules do not preclude a lot of fuel-related activities that LG&E Energy could have engaged in, but didn't. While there could have been many transactions, including joint procurements or sales going in both directions between KU, LG&E and WKE, there were only those transactions previously identified.
- All personnel in the Fuels Department interviewed by Liberty demonstrated an almost passionate desire to avoid affiliate transactions that could lead to accusations of improper behavior.
- Liberty does not recommend that LG&E Energy change its philosophy.
- As described in Conclusion #3 above, the Utilities missed an opportunity to procure economical coal from RAG because of affiliate concerns.

³² Response to Data Request #66.

- Any potential concern about RAG as a prospective supplier will soon be moot if RAG AG sells its interest in RAG American Coal Holding, Inc.

6. There is a potential conflict of interest associated with having the same person in the Administration Section of the Fuels Department handle and input data into the CSMS for both LG&E/KU and WKE. (Recommendation #2)

Liberty’s examination of the activities of personnel in the Department’s Administration Section found that one individual has responsibility for entering fuel-management data into CSMS for both the Utilities and WKE.³³ The Data Entry Clerk handles all CSMS data entry for WKE as well as some of the data entry for both KU and LG&E. Because there is no separation between these duties for the Utilities and WKE, this individual would have the opportunity to make data comparisons and adjust data entries to favor one entity to the detriment of the other. This organizational arrangement is a weakness in affiliate-relations controls and violates one of the basic standards of organizational separation of responsibilities.

Liberty points out, however, that resolution of this issue will occur through accomplishment of Recommendation #2 and the creation of a separate organization for procurement and management of WKE fuel activities.

7. Industrial coal sales benefit the regulated customers of LG&E Energy.

LG&E Energy sells coal to a few industrial customers because it has transportation and storage resources at a power plant that enable it to sell coal and make a profit. This line of business allows LG&E Energy to make a small margin (on the order of about one-half million dollars annually), which it records above the line to the benefit of ratepayers.

There are several possible areas of concern related to this activity. First, it would be possible for LG&E Energy to buy coal from an affiliate, either RAG or WKE, at an inflated price, benefiting a non-regulated business and at the same time reducing the margin available to the regulated customers of LG&E Energy. Also, the industrial coal sales activity uses regulated utility assets such as coal unloading facilities. If the industrial coal activity precluded normal utilization of the utility assets, then the regulated customers of LG&E Energy could be harmed. Liberty found no evidence that either of these activities affected the ratepayers of LG&E Energy in any harmful manner.

Liberty found the following about LG&E Energy’s industrial coal sales:

- A review of the invoices that LG&E Energy received from its industrial coal suppliers and the invoices that LG&E Energy sent to its industrial customers showed that LG&E Energy paid less for the coal than it charged to its customers³⁴

³³ Interview of Esther Thompson-Long by Don Spangenberg on December 2, 2003.

³⁴ Response to Data Request #70.

- In 2001 and 2002 the net revenue from the Coal for Resale and Ash Hauling business was \$593,524 and \$274,606 respectively³⁵
- There were no sales to industrial customers by RAG³⁶
- LG&E Energy has not conducted any analysis of the contribution margin for these activities³⁷

D. Recommendations

- 1. Include a requirement for contemporaneous documentation of the pricing basis for all affiliate transactions in the revised Fuel Procurement Policies and Procedures.** (*Conclusion #2*)

In Recommendation 5 of Chapter I, Organization, Staffing and Controls, Liberty recommends expanded detail relating to requirements and documentation in the area of affiliate relations. Included in such expanded procedures should be the requirement for retention of documentation that supports decisions to enter into any affiliate transactions; this addresses the current lack of documentation of the trans-loading service provided by WKE, as discussed above. Liberty can say that we did not have a concern about this transaction because, if it was overpriced, the effect on KU's customers was so small as to be inconsequential (a few cents on a little more than 100,000 tons of coal). Nevertheless, provision must be made to document all future affiliate transactions in a more thorough and justifiable manner.

- 2. Develop a plan to move the fuel-procurement function for WKE to its own department in the WKE organization.** (*Conclusion #4 and Conclusion #6*)

While the Commission in its recent decision involving the sale of Polish coal made it clear that it did not approve of the Fuels Department performing fuel-management activities for both WKE and the Utilities, LG&E Energy has not made that separation, as Liberty described above.

WKE could have its own department to procure and manage fuel for its power plants. There already is a WKE organization structure that could accept the additional people, functions and responsibility.³⁸ The additional costs to KU, LG&E, and WKE would be small compared to their expenditures for fuel.

WKE's assumption of responsibility for its own fuel procurement would not be hindered by many common resources that need to be re-allocated, or by any problems with vendors that would need to be resolved, such as joint contracts for fuel, transportation, or disposal of

³⁵ Response to Data Request #65, and follow-up e-mail clarification.

³⁶ Response to Data Request #68.

³⁷ Response to Data Request #70, and follow-up e-mail clarification.

³⁸ Response to Data Request #71.

combustion by-products. Thus, the current economies of scale are small, and so the diseconomies of separating would also be small.

A question remains as to whether such separation would resolve all potential problems of abuse. If someone were intent on abusing the affiliate relationship, ways could always be found to do so. Further, there could also be an argument that the appearance of a lack of opportunity for problems because of true organizational separation could lead to a relaxation of the controls and vigilance now directed at proper affiliate conduct; this would not be a good outcome. Under the current arrangement, Liberty is comfortable that the affiliate relationships have not been abused. This was validated through extensive interviewing and examination of affiliate transactions. In addition, Liberty is comfortable with the ethical standards of the current personnel in the Fuels Department. However, personnel can change, and time as well tends to diminish the focus on areas that at one time received considerable focus, both internally and externally by the Commission.

Responsibility for fuel-procurement decisions for both the Utilities and WKE must eventually come together at some point. It is Liberty's opinion, however, that this point of convergence should come at a higher level, and after separate Director-level decisions have been made. The point at which primary responsibility for fuel procurement and management decisions are made should be at the point where the decision maker has responsibility for either WKE or the Utilities but not both.

Liberty also found that the Data Entry Clerk in the Administration Section of the Fuels Department is responsible for entry of all WKE data into CSMS and entry of some KU/LG&E data into CSMS. This organizational arrangement must be changed in order to remedy this weakness in affiliate controls. The standard resolution of such situations is to create true organizational separation of duties between similar activities for the regulated and non-regulated operations. Such organizational separation would mean that two different individuals would be responsible for entry of data into CSMS – one responsible only for entry of WKE data, and one responsible for entry of KU/LG&E data. Ultimate resolution of this issue will occur when these WKE administrative functions are transferred out of the SERVCO organization and into a separate WKE fuel procurement and management organization, as is the overall intent of this recommendation.

In summary, Liberty feels that all possible temptations for abuse of the affiliate situation must be removed, and that true organizational separation is the best way to accomplish this.