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Final Report
Management/Performance Audit
The East Ohio Gas Company
(Case #99-219-GA-GCR)

Presented to:

The Public Utilities Commission of Ohio

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I. Introduction & Executive Summary

A. Purpose and Scope of This Report

To evaluate gas distribution company compliance with Ohio's Uniform Purchase Gas Adjustment Clause, Chapter 4901:1-14 of the Ohio Administrative Code, the Public Utilities Commission of Ohio (*The Commission, or PUCO*) has ordered a management/performance audit of The East Ohio Gas Company. To provide for this audit, The Commission issued RFP No. U99-GCR-1 on April 2, 1999. In response to this RFP, and by Finding and Order in Case No. 99-219-GA-GCR, The Liberty Consulting Group (*Liberty*) was selected to conduct the audit of East Ohio Gas for the audit period 8/1/97 through 7/31/99. The following report presents the results of Liberty's management/performance audit of the gas purchasing practices and policies of East Ohio Gas for the audit period of August 1, 1997 through July 31, 1999.

Liberty's audit responded to the requirements of the RFP which included:

1. GENERAL REQUIREMENTS

   (a) Determine whether the Company's purchasing policies were designed to meet the Company's service requirements. Review the Company's supply portfolio and capacity as they relate to meeting the Company's service requirements. Examine the procurement (capacity and supply) planning process to ensure the appropriate allocation of services between sales and non-sales customers. Discuss the Company's planning as the provider of last resort. Identify significant terms of capacity and supply contracts, such as total daily entitlements, duration and pricing.

   (b) Review the Company's audit period activities as they relate to the utilization of supply and capacity agreements. Examine the company's monthly supply purchases and determine the extent to which the Company took actions to foresee pricing volatility, hedge risks, and reduce the level of pricing volatility by means of hedging techniques (natural gas futures, fixed price contracts, etc.) or other means.

   (c) Evaluate the Company's efforts to renegotiate, de-contract, assign and/or release capacity once utilized by sales customers who have migrated to transportation service. Present in text and table form the capacity changes that occurred during the audit period and calculate the stranded cost that resulted from the migration of customers from sales to transportation service and discuss methods of recovering stranded costs from stakeholders. Also evaluate the Company's methods of releasing unutilized system supply capacity.

   (d) Examine the extent to which Company's upstream system supply capacity, storage and new services are used for the purpose of transporting non-sales customer gas, including Customer Choice Program and the method that the utility uses to allocate the related costs/revenue to the transportation customers, and system supply customers on a proportionate basis. Review the method in which the Company

balances transportation customers' deliveries and the impact on system supply customers

2. OTHER GENERAL REQUIREMENTS

Review the Company's affiliate relationships. Describe how the affiliate interfaces with the system supply customers and other transportation programs, what facilities and personnel they use in common, and if costs are co-mingled, how they are allocated. Using organization charts show which operations and management personnel are common to both businesses.

(a) Review the Company's plans for the implementation of alternative rate regulation or exemption commodity service under the Commission-approved guidelines in Case No. 96-700 GA-ORD (HB 476) Examine the Company's separation plans to ensure that the regulated and non-regulated operations maintain sufficient level of autonomy. In such review consult the state law (Substitute House Bill 476 as Enacted by the 121st General Assembly) and Commission developed rules (Ohio Administrative Rules 4901:1-19).

Also evaluate the Company's proposals to replace the GCR mechanism with alternatives which recover the capacity and supply costs traditionally recovered from sales customers

(b) Identify all products that the Company is proposing for incentive purposes that utilize system services (contracts included in the GCR, personnel, etc.).

(c) Follow-up all issues identified for further review in prior financial or M/P audits, along with Commission entries. Address and conduct any analysis or work scope required or carried over to the current M/P audit.

3. COMPANY SPECIFIC REQUIREMENTS

Determine whether the Company addressed the issues contained within the Stipulation of Case No 97-219-GA-GCR and Case No. 97-119-GA-FOR, which include:

(a) Development of contract document control policies and procedures to ensure immediate location and access to key capacity and commodity supply contracts.

(b) Development of certain stipulated modifications for inclusion in the next prepared long-term forecast report (LTFR)

(c) Development of detailed and thorough long-term strategic supply plan which should have been completed by February 28, 1999.

(d) All other recommendations contained in the 1997 M/P audit.

B. The Company

The East Ohio Gas Company is a Local Distribution Company (*LDC*) which distributes natural gas in 21 counties in northeast Ohio, including the metropolitan areas of Cleveland, Akron, Ashtabula, Canton, Youngstown, and Warren. The Company's service area also includes the city of Marietta and Washington and Monroe Counties in southeastern Ohio, and 34 cities and villages in western Ohio centering around Lima. Approximately 1.2 million customers are served in these combined areas. East Ohio is a wholly-owned, retail natural gas distribution subsidiary of the Consolidated Natural Gas Company (CNG), a public utility holding company, founded in 1942, and registered under the Public Utility Holding company Act of 1935.

In addition to East Ohio, other principal subsidiaries of CNG include.

Regulated Business:

The Peoples Natural Gas Company, Pittsburgh, serves 349,000 distribution customers in western Pennsylvania;

Virginia Natural Gas, Inc., Norfolk, serves 223,000 distribution customers in southeastern Virginia;

Hope Gas, Inc., Clarksburg, West Virginia, serves 116,000 distribution customers in West Virginia;

CNG Transmission Corporation, Clarksburg, West Virginia, is an interstate gas pipeline that provides transportation and storage services to other CNG subsidiaries, to nonaffiliated utilities, and to other customers in the Midwest, Mid-Atlantic and Northeast regions of the United States.

Nonregulated Business:

CNG Producing Company, New Orleans, explores for and produces oil and gas in the Gulf of Mexico, the Appalachian region, the Southwest, the West and in Canada.

CNG Retail Services Corporation, Pittsburgh, markets natural gas, electricity, related energy products, home products and services to retail markets.

International:

CNG International Corporation, Reston Virginia, owns interests in natural gas and electric businesses overseas.

Throughout this report, there is discussion of the assistance which East Ohio, and the other CNG LDCs receive from the CNG Local Distribution Company (LDC) Gas Supply Group (GSG). This group assists with LDC gas management functions and acts as agent for each of the four CNG LDCs in providing competitively priced gas supplies and other services to these LDCs. This GSG organization is part of the overall regulated CNG business, and resides within the Commercial Operations organization. A complete description of the GSG, its reporting relationship as a regulated business entity, and its activities is contained in Chapter III of this report.

C. Executive Summary

The remaining chapters of this report document the extent to which the audit responds to the requirements of the RFP. Chapter II, of this report, Gas Supply Planning & Management, explores many of the central issues of the audit related to the Company's supply portfolio and capacity and how these relate to meeting the Company's service requirements. This review examines the procurement (capacity and supply) planning process to ensure the appropriate allocation of services between sales and non-sales customers and discusses the Company's planning as the provider of last resort. With respect to these issues, this audit finds that the planning process at EOG is generally well thought out, well conceived, and well implemented. The audit also finds that demand and supply have been appropriately balanced by the Company, there is flexibility in the planning process, and planning for new markets is appropriate. However, Liberty believes that additional incorporation of risk in the planning process is necessary. Specifically, the EOG planning process does not explicitly factor in a distribution of possible weather conditions, nor does it explicitly consider the error associated with forecasting sendout on a daily basis. In addition, the audit notes that, within the next two years, the Company will be presented with a unique opportunity to optimize its gas supply portfolio to accommodate further customer choice initiatives. However, in order to capitalize on this opportunity, one of two strategies must be pursued. Either the Company must petition the Commission to clarify or modify its supplier of last resort obligation or the Company must implement a "comparable capacity", or similar feature in its transportation agreements with small volume transporters. Currently, the Company has expressed a preference for implementation of the "comparable capacity" feature. However, this preference is driven by an assumption that supplier of last resort responsibility will remain with the Company for the foreseeable future. To the extent that the Commission takes action to change this obligation, the Company's position will likely change.

There are compelling reasons for prompt decisionmaking on the part of the Company related to its eventual roles as a merchant supplier and as a supplier of last resort. Because contracts for 85% of East Ohio's interstate firm transportation capacity and 83% of its interstate pipeline storage capacity will be expiring in the next two years, an opportunity has been created to substantially restructure the system supply capacity portfolio. However, there remains considerable uncertainty regarding the responsibility for supplier of last resort and whether East Ohio will be required to (or allowed to) exit the merchant function. These issues will have a direct bearing on whether the contract portfolio restructuring opportunity can be seized. To the extent that the LDC is not relieved of supplier of last resort or merchant obligations, it may be required to maintain higher levels of capacity than it would otherwise be required to hold to meet the needs of sales customers. Thus, clear decisions must be made soon by the Company, and appropriate petitions made to the Commission. This need to hold redundant capacity can be avoided if East Ohio has no supplier of last resort or merchant obligations. As a second-best alternative, if the Company is successful in requiring third party transporters that supply human needs customers, or small retail customers, to maintain citygate capacity comparable to that which East Ohio would hold on behalf of sales customers, these concerns are minimized.

A more complete description of the expiring contracts, as well as significant terms of capacity and supply contracts, such as total daily entitlements, duration and pricing, are summarized in Exhibit II-8 of this report. Consistent with the audit requirements, this exhibit also presents in detail the capacity changes that occurred in these contracts during the audit period. The audit also examined the

Company's audit period activities as they relate to the utilization of supply and capacity agreements. The audit also looked at price risk management. Furthermore, to this point, the company has not utilized classic hedging techniques (natural gas futures, options, swaps, etc.) to minimize price volatility.

The Company's efforts to renegotiate, de-contract, assign and/or release capacity once utilized by sales customers who have migrated to transportation service are explored in Chapter V, Gas Balancing, and Chapter VII, Response to Regulatory Change. East Ohio's primary response to stranded cost issues has been to mitigate the potential stranded cost through direct assignment to small-volume transportation customers. Thus, stranded costs are zero, to this point. Liberty's audit finds this practice to be appropriate, as it has protected the Company and its sales customers from stranded cost burdens. However, the audit also finds that it will be more difficult to continue this practice after full scale implementation of customer choice due to the potential magnitude of the stranded costs involved. In the future, the Company plans to implement a "comparable capacity" requirement for third-party marketers. While this will not ensure that no stranded costs are incurred, this approach does provide the Company with a basis to proceed with its negotiations for interstate pipeline capacity. Finally, this audit reviewed the Company's methods of releasing unutilized system supply capacity. These were found to be appropriate, as discussed in Chapter VII, Response to Regulatory Change.

Chapter V, Gas Balancing, explores in detail the method by which the Company balances transportation customers' deliveries. This audit finds that the allocation of the costs between transportation customers and system supply customers is generally reasonable as it is based on cost of service principles. Thus, there have been no adverse impacts on either system supply customers or customers who chose to transport natural gas over the East Ohio system. We do, however, recommend an alternative allocation of upstream system supply capacity and storage that are used for the purpose of transporting non-sales customer gas, including the Customer Choice Program. The discussion supporting this recommendation is also provided in Chapter V, Gas Balancing.

The Company's affiliate relationships are discussed in Chapter VIII. This chapter describes how the affiliate interfaces with the system supply customers and other transportation programs, what facilities and personnel they use in common, and if costs are co-mingled, how they are allocated. The organization charts provided as Exhibits III-1 through III-5 show precisely those operations and management personnel that are common to both businesses. The audit of this area of the Company's operations finds that East Ohio has both procedural and physical separation between the Company and its affiliates. The audit also finds that East Ohio deals with its affiliates on an arms length basis, and conducted business with affiliates on the same terms and conditions as it did third party entities.

At this point in time, the Company has no specific plans for the implementation of alternative rate regulation or exemption commodity service under the Commission-approved guidelines in Case No. 96-700 GA-ORD (HB 476), nor has it plans to replace the GCR mechanism with alternatives that recover the capacity and supply costs traditionally recovered from sales customers. Similarly, the Company is not proposing incentive regulation schemes. The Company's specific proposals in response to regulatory change are discussed in Chapter VII, Response to Regulatory Change, of this report.

Finally, the audit examined whether the Company addressed the issues contained within the Stipulations of Case No. 97-219-GA-GCR and Case No. 97-119-GA-FOR, as well as all other recommendations contained in the 1997 M/P audit. The Company has chosen to address the issues from the Stipulations as follows:

1. East Ohio began billing the Transportation Migration Rider, part A, at a rate of $.099 per Mcf effective with bills issued December 1998. Revenues collected from the rider have been credited to GCR customers through the Actual Adjustment mechanism of the GCR

2. East Ohio credited $275,761 to GCR customers through the Actual Adjustment mechanism of the GCR.

3. East Ohio complied with the forecasting issues as described in the Company's 1999 Long Term Forecast Report.

4. The CNG Local Distribution Company (LDC) Gas Supply Group (GSG) implemented an approval policy and document control procedures to ensure immediate location and access to key capacity and commodity supply contracts.

5. East Ohio developed a detailed and thorough long-term strategic supply plan and included it in its 1999 Long Term Forecast Report. The Company did request an extension beyond the February 28, 1999 date in order to respond to a Commission Staff data request regarding various obligation to serve, provider of last resort, and GCR reform issues posed by small customer supplier choice programs. Liberty determined that EOG satisfied all of the requirements of the subject stipulation related to the LTFR.

The Company has chosen to address the issues from the 1997 M/P audit as follows:

1. East Ohio has adopted a design day criteria of 76 heating degree days into its capacity planning process and incorporated a four hour peak of approximately 15% into its winter period daily planning process.

2. The Company is currently investigating the operational feasibility of direct connects with Tennessee Gas Pipeline and Texas Eastern Transmission for delivery of supplies to its system.

3. East Ohio's new transportation and pool management system maintains information with respect to daily and monthly deliveries to its system on behalf of transportation by source.

4. The Company does not maintain data that would permit a comparison of initial and retroactive storage service nominations. Liberty's audit concurs with this position

D. Recommendation Summary

Gas Supply Planning & Management

1. The Company must put greater emphasis on probability analysis in its planning process for peak day, seasonal, and annual supply.

2. The Company must pursue a strategy to minimize stranded cost exposure for remaining sales customers, and must do so in a manner that ensures customer choice initiatives are not thwarted.

Organization, Staffing & Controls

1. The CNG Internal Auditing Group should continue the process established in the initial audit of the LDC Gas Supply Group and audit the gas procurement and management practices on approximately an annual basis.

Gas Transportation

1. Mandatory capacity assignment should remain in place in order to minimize sales service customer stranded cost exposure until the Company has established a formal policy with respect to the supplier of last resort and merchant responsibility issues.

2. EOG should continue to monitor the performance of small volume transportation service customers as they return to sales service.

Gas Balancing

1. The Company should change the allocation factors used in the capacity assignment process to minimize the potential for cross-subsidies between sales and delivery service customers and for different size and different load factor customers participating in the customer choice program.

Regulatory Management

No Recommendations

Response to Regulatory Change

1. The Company must develop a clear and concise gas-supply strategy before the current transportation contracts must be renegotiated.

Affiliate Relationships

1. EOG should formalize the assurance that employees are aware of affiliate relations procedures and codes of conduct. In addition, internal audits should periodically monitor affiliate relations and transactions.

II. Gas Supply Planning & Management

A. Scope

This chapter addresses EOG's natural gas supply planning in order to meet its anticipated demands. This process includes the balancing of demand and supply for a design day, design season, and annually. In the sections below, this report addresses first the structure of the planning process, and how that process interacts with other corporate functions. Next, risk, and how it has been factored into the planning process, is discussed. The next section discusses the forecasting of customer demand, the assessment of the resources the Company will have available to it to meet customer demands, and how these are brought into balance. This is followed by a discussion of supply planning flexibility. The discussion then turns to the planning for new markets, the supply planning implementation and evaluation process, and peak-period performance.

Also included in this chapter of the report is a detailed discussion of current audit period capacity arrangement activity and those services which East Ohio utilized during the audit period to serve the requirements of its customers. Finally, this chapter of the report includes a discussion of East Ohio risk management activities.

B. Background

1. Structure of the Planning Process

The Gas Supply Planning process at East Ohio Gas *(EOG)* is performed by the CNG LDC Gas Supply Group *(GSG)*, a shared services organization that provides gas planning services for all four of the CNG LDCs, East Ohio Gas, Peoples Natural Gas, Virginia Natural Gas, and Hope Gas. Prior to forming the GSG on July 1, 1997, gas supply planning was conducted on an individual company basis. CNG consolidated the engineering, gas supply, marketing, and materials management processes into one group in order to leverage size and technology. The Gas Supply Group is located in the Commercial Operations organization of CNG, as illustrated in Chart III-3 of Chapter III.

The GSG was designed "from scratch," in order to create an organization that relied heavily on best practices and one that had a strong customer focus. Its vision statement indicates that it will "provide reliable, competitively priced gas supplies, capacity and related services to satisfy the physical gas needs of the CNG LDC Companies (LDCs). The management approach and organizational structure of the GSG will emphasize customer service and efficiency."[1] There are twenty-nine people in the organization who act as agents for the four LDCs and represent them before the FERC and state regulatory authorities and in contracting for capacity and gas supply. These individuals provide assistance to each of the four LDCs, but LDC responsibilities are not delegated to them. The group performs one- to five-day, short-term (monthly and seasonal), and long-term (one- to five-year) planning.

Communication between the GSG and the individual LDCs is facilitated by a number of structures. These are described in detail in Chapter III of this report, Organization, Staffing, and Controls.

The GSG is organized into four separate departments. The first is the System Operations Group, which performs the actual gas supply planning function. Each individual in this department is assigned to a particular LDC. The second is the Supply Area Gas Acquisition Department, which includes purchasing, nominations, scheduling, and gas transmission on twelve interstate pipelines. A third department, Market Area Gas Acquisition, is responsible for local purchases. Finally, the Regulatory Support and Gas Accounting department provides accounting support to the other departments, and has primary responsibility for two information systems that administer the transactions between suppliers and the Company. The organization chart for the GSG appears as Exhibit III-1, in Chapter III of this report.

The long-term planning process considers market commitments and projections, supply and capacity commitments and projections, and the rate and regulatory outlook to develop the supply-related business strategy, individual company portfolios (that identify risks and pricing positions), supply-related term decisions (contracting and decontracting), and capital budget plans (construction and acquisition). The short-term planning process is a subset of long-term planning. It considers actual operating data compared to the plan, weather forecasts, the operational outlook, and any updates to the plan or variances from the plan to develop individual company seasonal plans (that rationalize costs and reliability), combined system plans that identify synergies, and acceptable operating parameters such as storage inventories. The one- to five-day operational planning process uses weather forecast, the operational outlook, and the real time pricing of gas and capacity to produce an optimal dispatch schedule, contingency plans, and short term capacity release plans.

The long-term planning process is developed with inputs from three different sources: the LDCs, the GSG interstate and local supply functions, and the pipeline suppliers. The LDCs supply information on the current local regulatory climate (from the rate department), load increases and decreases (the marketing department), the status of unbundling, and pipeline rates, and the status of any pending pipeline rate cases. The GSG interstate and local supply functions provide information on capacity, storage, and supply contract expiration dates and notification periods, system synergies, and market pricing projections. Pipeline suppliers provide information on market expansions, rate and tariff changes, and competitive pipeline analysis and expansion plans. The GSG uses this information to develop individual company portfolios, a CNG system optimal regulated portfolio, and implications for CNG Corporate business plans and strategies. The Company portfolios are reviewed at the LDC level to verify that each passes a reliability and a regulatory test. Only when both of these tests have been passed is the plan forwarded to Gas Acquisition for implementation and to Gas Supply Planning to write the Long Term Strategic Supply Plan (discussed below).

The short-term planning process, which has a one-month to one season forecast horizon, proceeds in four phases. In the pre-analysis phase, information is collected from the Gas Acquisition Department, the Risk Management Department, the NYMEX, local production, Transport Services, Gas Control, and Marketing and Operations to determine the pricing scenarios to be used, starting storage inventories, transport customers storage and flowing supply projections, and operational constraints. These outputs serve as inputs to the short-term planning analysis phase, in which

recommendations for each LDC concerning supply, transport contracts, and storage use for the next month are developed. In addition to the information from the pre-analysis phase, this phase relies on LDC-specific information, probabilistic weather forecasts, and the combined dispatch plan for all LDCs together. The analysis to this point feeds into the pre-bid week meeting phase of the analysis in which plans are approved or modified, and supply procedures are written for each LDC and communicated to Gas Control. The short-term planning process culminates in a daily monitoring phase, which relies on short-term weather forecasts, market conditions, and operational constraints to update plans for actual conditions and adjust supply procedures to accommodate the new information. Daily monitoring is at the heart of the one- to five-day operational planning.

One- to five-day operational planning is performed each day before 10:00 a.m. It relies on confirmation from the LDCs, from the GSG Interstate Supply Department, and from CNG Transmission. The Gas Control departments of the LDCs provide weather forecasts, an operational outlook, and a customer demand forecast for the next five days. Local Supply departments provide estimates of local supply for both system supply and end-users. Transport Services departments provide estimates of transportation volumes. And Storage Engineering provides estimates of storage inventories and the storage deliverability status. The GSG Interstate Supply Department provides its assessment of market conditions and pricing as well as capacity entitlements. CNG Transmission provides its operational outlook. The process results in the production of two primary reports: a Daily Activity Report for all LDCs (at the individual and summary level) and a Storage Report, which is updated with month end balances. The process also produces recommended adjustments to daily purchases, swing contracts, peaking contracts, and storage injections and withdrawals. These adjustments are provided to the GSG Interstate Supply Department for execution. The process may also result in rewritten supply procedures for each LDC's Gas Control Department that are communicated back to them and to CNG Transmission.

2. Incorporation of Risk into the Planning Process

The EOG planning process balances the projected supply of natural gas with the projected demand. However, there are many reasons why these projections will differ from realized values and supply may not be sufficient to meet demand on a given day. Consideration of the factors that lead to this difference leads to the incorporation of risk into the planning process.

Demand forecasts may be different from realized demand for three reasons. First, since the projected demand is estimated by statistical means (as discussed below), the projected demand is imprecise, even if the equation that is used to develop the projection is properly specified from a statistical standpoint. Thus, all one can say about the resulting demand estimate is that it will fall within some range with a given probability. Second, it is likely that the mathematical equation used to project demand is mis-specified in some way. This is not a particular criticism of the EOG forecasting approach. Rather, it is an explicit acknowledgment that the statistical methods used to project natural gas demand are imprecise at best. Finally, demand is projected using other variables that are assumed to influence the demand for natural gas, and which are themselves impossible to predict with complete accuracy. The most obvious variable that falls into this latter category is weather conditions

Available supply on any given day may also be different from projected supply because of freeze-offs, pipeline disruptions, leasehold retention by local producers, and changes in storage deliverability as the duration and severity of weather changes. Supply disruptions can be broadly categorized into two groups: those caused by failure of commodity sources or delivery capacity upstream of the EOG system, and those related to a failure of the distribution system itself.

With respect to supply- or capacity-related disruptions, regardless of the quality of supplies and capacity acquired by EOG to meet its firm service obligations, supply or capacity disruptions can occur. Typically such disruptions would be related to force majeure type events that occur with little or no prior notice. If a substantial supply- or capacity-disruption occurs off-peak, EOG would have access to alternative supplies and capacity within its portfolio to reduce or eliminate the effect of the disruption. If the disruption were to occur coincident with a design peak day or was of sufficient magnitude to exceed the available supply and capacity remaining in EOG's portfolio, the Company would have to seek supplies and capacity on the open market to offset the disruption. EOG has established a contingency plan to manage supply and capacity disruptions whenever they may occur, with the goal of minimizing both the magnitude and duration of any adverse effects the disruptions would have on its customers[2]. The plan provides that EOG will use immediately available sources within its supply and capacity portfolio to mitigate any supply disruption it experiences, and if that response is insufficient, EOG will attempt to locate and acquire additional sources of supply and capacity on the market. If those additional efforts fail to fully offset the disruption, EOG would proceed to curtail low priority loads consistent with its tariff in order to preserve service to higher priority loads.

Distribution system related disruptions are those caused by failure of a portion of the physical facilities of the EOG system such that EOG is unable to fully meet its firm gas delivery obligations despite having sufficient total supply and capacity available to meet aggregate system requirements. This may be caused by events such as frozen regulators, pipeline ruptures, or compressor failures. Typically such a failure would reduce or completely terminate gas delivery capability to some specific portion of the EOG distribution system. Again, EOG has established a contingency plan to respond to these types of occurrences.

In addition to these relatively short-term reliability concerns, potential design cold winter weather demands must be addressed. Because a large portion of EOG peak-day and seasonal supply is storage based, availability of these supplies is dependent upon the associated gas inventories. Thus, if gas is to be available on peak and near peak days as well as throughout a severely cold winter period, storage inventories must be properly sized and managed. Properly sized inventories will ensure that inventories are sufficient to meet requirements through a design cold winter. Proper storage inventory management ensures that storage withdrawal capability (which is a function of inventory remaining in storage at any point in time) is protected throughout the winter period so that potential individual peak day demands within the winter months can be met.

EOG incorporates the above types of risks into the planning process in a six-step procedure. First, base- and thermal-load factors by major customer class are combined with an estimate of design day temperature and losses to develop annual and design-day sendout. Next, weather distributions are developed from historical data so that ranges of demand estimates, and associated probabilities, can

be developed. Third, because the Company faces a different risk for each type of supply resource in its portfolio, the Company's supply resources are grouped into three categories of supply: interstate flowing supplies, local area production, and storage. Interstate flowing supplies may be disrupted due to freeze-offs, hurricanes, mechanical failure of compression and regulating equipment between the wellhead and the city-gate, and pipeline ruptures. Production area storage (the Egan salt dome storage facility) is derated to reflect the fact that it only has deliverability on upstream pipelines at secondary delivery points. Local area production is reduced to reflect leasehold retention and other supply disruptions. Storage is further broken into base storage and peaking storage. Base storage is operated continuously throughout the winter period. The ability of these resources to meet demand conditions is reduced as the storage inventories are reduced. The decline in deliverability of these resources occurs gradually throughout the winter period. This gradual decline is in contrast to the decline in deliverability of the peaking storage resources, which are reduced rapidly and influence the deliverability over a number of days as the resource is called on to meet demand conditions. Contract storage, such as that provided by CNG GSS service, is governed by inventory based ratchets.

The fourth step in the reliability analysis is to develop a probability of supply. Probability of supply is developed by postulating different levels of deliverability for each group of supply resources. Local production was assumed to have a 100 percent chance of derating for temperature-related producer retention, and a 33 percent chance of an additional 3 percent derating in all months. For storage resources, the duration of weather conditions are combined with the deliverability of the supply resources to develop available capacity. Step five combines the probability of demand with the probability of supply to obtain the probability of unmet sales demand. This probability is expressed as a loss of load probability and expected unserved energy. Finally, the optimal level of reliability is calculated as that point where the cost of acquiring additional resources is just equal to the cost of an outage.

In the GCR management performance audit performed in 1995, the auditor recommended, and the Company agreed, that EOG should assess the assumed reliability factors for its sources of supply, particularly that of its firm interstate capacity. As a result, EOG secured the services of R. J. Rudden Associates (*RJRA*) to perform a comprehensive assessment of the reliability of its major supply sources. The resulting study was provided to the Commission on a confidential basis in Case No. 97-219-GA-GCR[3]. Included in that assessment is a qualitative and quantitative assessment of gas supply reliability, on an historical as well as projected basis. In particular, RJRA found that there are several key variables that jointly affect peak period system supply reliability. These include

- Intra-Day Peak Period Demand. Given the impact that such an intra-day peak has on system operations, RJRA found it more appropriate to focus on the Company's ability to meet that sendout level rather than a single 24-hour period

- Multiple Day Peak Period. RJRA found that the Company's focus on multiple day deliverability was appropriate and, in fact, found that EOG's assumptions about the severity of multiple day cold spells were overly optimistic

- On-System Storage Deliverability. Given the need to anticipate several consecutive peak days, RJRA found the Company's ability to make storage withdrawls on the third day of a peak period is a key determinant of whether an outage will occur

- Supply Area Freeze-Offs. Based on an historical comparison between market area and supply temperatures, RJRA found that there is an extremely high probability of market area design day conditions being accompanied by supply area weather that could lead to freeze-offs upstream of pipeline receipt points.

- Local Production Deliverability. RJRA's assessment of local production delivered into EOG's gathering system led to the conclusion that production declines attributable to freeze-offs and leasehold retention are key factors that must be incorporated into peak day supply planning.

- Asset Allocation. Another key issue identified in the RJRA study is the impact of storage asset allocation between sales and transportation customers on the peak capacity available for system supply deliverability. Because costs attributable to both on-system and off-system storage are included in General Transportation Service rates, it becomes necessary to identify what portion of those assets are paid by, and therefore allocable to, transportation customers. In addition, the settlement of the Company's unbundling case included a provision to convert interruptible storage service *(ISS)* to firm storage, which requires a similar allocation.

Since the completion of the RJRA study, EOG has experienced record-breaking, warmer-than-normal weather. As a result, it has not faced any reliability issues since that time. Notwithstanding that experience, EOG believes that the general conclusions drawn by RJRA with regard to supply reliability are still valid for purposes of assessing the anticipated reliability of each of the Company's gas sources over the forecast period[4], although it no longer explicitly derates flowing supplies in its planning process.

In addition, EOG and CNG's LDC Gas Supply Group personnel are taking steps to mitigate disruptions (supply and capacity related as well as distribution system related) due to any Y2K problems that may occur on January 1, 2000. As part of CNG's Y2K Continuity Planning effort, detailed contingency plans have been developed for unforeseen supply problems that may occur due to electric, telecommunication, and/or facility outages during the first two weeks of the new year. These plans address changes to the overall makeup of the supply portfolio to ensure reliability as well as contingency planning efforts regarding facilities, staffing, process work-arounds, and emergency communications with pipelines and suppliers for the weekend of December 31, 1999 through January 3, 2000. These efforts are being conducted as part of CNG's overall initiative to coordinate system wide Y2K preparedness efforts.

3. Balancing Supply Options

EOG's primary gas supply related responsibility is to provide reliable service at the minimal cost commensurate with that service. Minimization of gas supply costs necessitates a focus on the total cost (both fixed and variable) of the capacity portfolio and the commodity purchased. Variable costs

incurred are dependent on actual use of the contracted interstate pipeline services and the price of gas purchased. Total unit costs (cost including fixed and variable charges) are a function of the load factor maintained through the year on each service, which in turn are a function of weather-related demand and the cost of gas on each pipeline system on a delivered to EOG basis. The pipeline service demand, capacity, and commodity charges can change over time subject to changes to rates contained in the respective interstate pipeline's Federal Energy Regulatory Commission approved tariff. Gas prices vary with market conditions (the balance of supply and demand) in the short term and are affected in the long-term by a number of factors, including drilling activity and construction of new pipelines and storage facilities. The Company describes its balancing of supply options in The Long Term Strategic Supply Plan *(LTSSP)*, which must be developed annually by all Natural Gas Distribution Companies serving more than twenty-five thousand customers. It develops a demand forecast, a supply forecast, and a transmission forecast. Each component is discussed in this chapter of the report[5].

A separate demand forecast is developed for the residential and nonresidential classes. For the residential class, usage is estimated to be the product of usage per customer and the number of customers. Usage per customer is estimated to be a function of HDD/bill, days/bill, and a three month lagged price term, where the price term used is a marginal price. Residuals from the model are tested for conservation impacts. The number of customers is developed using a simple AR(1) autoregressive structure. The model results are adjusted for assumptions related to migration from sales to delivery service. Exhibit II-2 summarizes the forecast of demand by sector. Column 2 of that exhibit summarizes the forecast for the residential sector. EOG projects the demand for this sector to increase at an annual rate of 0.58 percent per year for the next ten years.

EOG disaggregates its non-residential usage into five SIC classifications: 2X, chemical; 3X, manufacturing; 5X, trade; 8X, nonprofit services; and other. In each of these five cases, the best forecasting model is one that includes explanatory variables HDD/bill, and days/bill. The number of customers is also developed using a simple AR(1) autoregressive structure. The resulting usage estimates are developed on a throughput basis and divided into separate sales and transportation volumes using 1998 market shares, which are held constant throughout the forecast period. The disaggregated sales forecast values are also provided in Exhibit II-2. Moderate sales growth of between 0.76 percent and 1.20 percent per year are projected over the ten-year forecast horizon. Combining the above forecasts with estimates of company use and lost and unaccounted for gas produces an estimate of the total supply for which the Company must plan. The resulting requirements forecast is summarized as Exhibit II-3.

Both the residential and non-residential models are also used to develop estimates of design day. The Company's design-day forecast by sector (including unaccounted-for gas) is summarized as Exhibit II-4. Total design-day requirements are anticipated to grow at a rate of 1.36 percent per year throughout the forecast horizon.

Having developed projections of supply requirements, EOG then develops a forecast of gas supply by source (storage, Ohio field purchases, and interstate pipeline deliveries). In the first forecast year, the projection of net withdrawals from storage is determined by EOG's anticipated year-end storage inventory relative to the prior year's actual inventory level. Deviations from normal weather in the

prior winter can cause the net calendar year withdrawal for the first year of the forecast to differ from zero. Beyond the first year, however, the net withdrawal is set equal to zero to reflect constant year-end storage inventory levels. The supply resources on which the Company will rely to meet annual sales requirements and design day requirements through the ten year forecast horizon are summarized on Exhibits II-5 and II-6, respectively.

In procuring the commodity, the LDC Gas Supply Group attempts to balance the portfolio with term, spot and swing purchases as determined by the seasonal planning model for EOG. The group also examines the appropriate mix of interstate and local Ohio purchases and attempts to price the local purchases competitively compared to the rest of the market. This seasonal planning model is completed for potential warmer-than-normal, normal and colder-than-normal design winter requirements. Design winter for EOG has historically been defined by the actual degree days experienced during the winter of 1976-77 with a 77 degree day occurring during the third week of January and other lesser peak degree day occurrences in February and March. Additional efforts will be made during the first two weeks of the new year to reflect the uncertainty associated with the Y2K threat and to ensure reliability of supply. Additionally, the LDC Gas Supply Group weighs the advantages of locking in fixed commodity prices versus making market- or index-based purchases in terms of reduced cost and/or price volatility. A study completed by GSC Energy in 1997[6] concluded that, while the EOG rate payer is fairly well insulated from volatility due to the significant amount of storage in the supply mix, additional price stability could be provided by fixed price contracts triggered when the winter (November - March) average price falls below certain points. Such evaluations will continue to be used in the winter as the Company evaluates its future options for commodity pricing.

For purposes of this forecast, EOG has based its price forecast on the ten-year projection of the producer price index for natural gas contained in the November 1998 Standard & Poor's DRI review of the U.S. Economy TRENDLONG1198 scenario. The price forecast projects nominal increases in price over the first half of the forecast period and much larger increases over the last half. The pattern generally conforms to the Company's expectation that the rationalization of interstate pipeline capacity will hold prices down over the next several years as pipelines respond to capacity turnback pressures with negotiated rates. At some point, however, it is expected that the midwest capacity oversupply situation will evaporate and prices will trend upward at a greater rate. Wellhead prices are likewise expected to come under more upward pressure in the latter half of the forecast period as the natural gas fired power generation market increases in importance with the start up of many facilities currently in the planning stage. Because EOG views its gas sources as being interchangeable, at least from a pricing perspective, it does not expect any substantial changes in the relative pricing across its local production, interstate and storage sources. The anticipated prices by major supply source (long-term and short-term interstate supply and Ohio field purchases), are summarized in Exhibit II-7.

EOG expects to source volumes delivered directly into or through the following upstream pipelines: ANR, CNG Transmission, Columbia Gulf, Columbia Transmission, Panhandle Eastern, Tennessee Gas Pipeline, Texas Eastern, Texas Gas, Transco, and Trunkline. Major producing areas expected to continue playing a key role in EOG's portfolio include the Ohio field, Appalachia, Gulf Coast (onshore and offshore) and the mid-continent. The Company also expects to broaden both its pipeline

and supply sources over the forecast horizon, possibly including western Canadian supplies produced in Alberta delivered to the Chicago hub and moved eastward using new or existing capacity into EOG's market area. EOG does not have company-owned production nor is it expected to over the forecast period. EOG's current and recent historical reliance on these interstate transportation sources is provided as Exhibt II-8.

In the next two years, contracts for 85 percent of the Company's interstate transportation capacity and 83 percent of its interstate pipeline storage capacity will be expiring, creating an opportunity to substantially restructure the system supply capacity portfolio. Specifically, the timetable for capacity recontracting over the next two years is as shown in Exhibit II-9. EOG's strategy for capacity recontracting is driven by the assumption that the Energy Choice program will be extended to EOG's entire market sometime in calendar year 2000, and that mandatory capacity assignment in its present form will be discontinued after November 1, 2000. Therefore, EOG's future capacity needs will only be for the anticipated system supply load, operational balancing, and any supplier-of-last-resort responsibility assumed by EOG after that date.

The first step in redefining EOG's capacity portfolio is to determine the system supply needs after November 1, 2000. Based on the retail sales to transportation service migration patterns experienced in EOG's 170,000 customer pilot and on other gas systems both within and outside Ohio, the Company has projected for planning purposes three migration scenarios: "gradual," representing a maximum of 25 percent migration; "moderate," representing a maximum of 40 percent migration; and "extensive," representing a maximum of 60 percent migration with migration stabilizing at those levels by November 1, 2002. As it approaches the year 2000, the Company will continue to monitor migration patterns to enable it to better predict capacity needs over the next 1 - 3 years. EOG has also begun consideration of the process by which it would potentially exit the merchant function under certain conditions and within certain time frames.

EOG has received its initial termination notice regarding the GSS storage service it receives from CNG Transmission, and it will receive a similar notice regarding CNGT's FTNN service in the first quarter of 2000. Both service agreements expire on March 31, 2001. In assessing its options, EOG has identified several issues that must be explored prior to making decisions regarding the type, quantity, and provider of future interstate pipeline services. These issues include factors related to the re-optimization of the capacity portfolio and the Company's requirements for interstate pipeline no-notice services.

4. Supply Planning Flexibility

EOG's system supply strategy has been developed with the various potential outcomes of an extremely uncertain environment in mind. Overall, the objective is to maintain adequate system reliability at the lowest cost while also seeking to minimize potentially stranded upstream capacity costs attributable to customer migration from sales to transportation service.

There exists substantial uncertainty regarding EOG's future retail sales supply requirements in the long-term. This uncertainty is a result of the Company's intent to make its Customer Choice program

available system-wide and the inability to reliably project the rate at which retail customers will migrate to unbundled transportation service or from unbundled transportation service back to retail service in the future under that program. Preferably, EOG would be able to contract for interstate pipeline services with short-term contracts or ones that include some flexibility (perhaps within certain annual bounds) to permit EOG to adjust service levels to match its retail sales requirements as those requirements change over time. EOG may be able to obtain such flexibility by direct negotiation with interstate pipelines as current capacity contracts approach expiration. It should be noted, however, that interstate pipelines may not have to offer such concessions in order to market their capacity, or may offer such concessions only as part of a premium service package. For example, buyers of interstate pipeline capacity may have to assess the tradeoff of paying a higher price for primary firm capacity in exchange for an option to reduce capacity entitlements in some predetermined fashion over the life of the contract.

For now, EOG has proposed to address this supply reliability aspect of uncertainty through a "comparable capacity" requirement[7]. Under this requirement, third-party transporters would be required to demonstrate that they hold capacity comparable to EOG's, with primary deliverability at EOG's citygate. This places the responsibility for holding capacity for small-volume customers on the marketers themselves.

Flexibility is also needed to address daily demand uncertainty. There may be changes that the Company could make to its forecasting structures to improve their accuracy and precision, and indeed, the Company has indicated that it is currently exploring the implementation of such changes. Nonetheless, by their very nature, daily demand forecasts are, and will be imprecise for a number of reasons. The daily demand forecast is highly dependent upon the temperature forecast, a major variable that introduces substantial and frequent error potential in both shoulder month and core winter periods. Additional demand forecast error results from the difficulty in identifying all relevant variables and determining their specific effect on demand (*i.e.*, prior day temperature, weekday versus weekend, wind speed, cloud cover, changes in customer usage patterns over time, previously described shoulder month demand anomalies, etc.). Nonetheless, daily demand forecasts are used to guide daily gas dispatching decisions.

As a result of the inherent difficulty in projecting system demand for gas on a daily basis, it is virtually certain that the supply scheduled to meet system demand will deviate from actual requirements. Although EOG is capable to some extent of absorbing some of this difference in scheduled versus required supply requirements within its own facilities via on-system storage injections and withdrawals and line pack management, much of the difference between the two is bridged via the use of CNG Transmission ("CNGT") and Columbia Transmission (for West Ohio Division) no-notice services whereby additional supplies required are automatically withdrawn from EOG's CNGT GSS and Columbia FSS storage inventories and surplus supplies are automatically injected into its GSS and FSS storage inventories, up to tariff specified limits, as necessary to balance scheduled supply and actual deliveries. In addition to daily balancing of scheduled supply with actual demand, CNGT's and Columbia's no notice services are not receipt point specific; that is, EOG is permitted to take delivery of its CNGT and Columbia delivered supplies at a multitude of CNGT/EOG and Columbia/EOG receipt points located on its system without the need to schedule specific quantities to each point. Also, individual receipt point quantities can be varied day to day and on an hourly basis

throughout the day (within tariff specified bounds) as needed by EOG's Gas Control area. The Company maintains that dispatching supplies to meet the uncertain daily demand and the variable hourly demand of the EOG system, as well as the variation of demand among receipt points throughout the day, would not be possible without some type of interstate pipeline no-notice balancing service.

This need for no-notice service exists because of the inability to accurately forecast demand on day to day, hourly and receipt point specific bases, and thus will continue to exist regardless of the entity serving the demand on the EOG system. That is, migration of customers from retail sales service to unbundled transportation service under EOG's Customer Choice program does not alter the need for no-notice services to effectively serve EOG system demand.

5. Planning for New Markets

EOG Gas is pursuing a wide variety of market segments and products, as identified by the Company's Market Plan.[8] Exhibit II-10 summarizes these segments by customer class. The Market Plan also identifies the cost of pursuing these markets and the likelihood of success of that pursuit. This evaluation begins by establishing the goals within each market segment, and how those goals will be measured. Then the plan identifies how Company sales resources are used in the market and any constraints on reaching the established goals.

Market economics are measured as the net present value of margins received versus costs. Costs include labor (for sales and marketing), marketing program costs, and communication (advertising) costs. Benefits are calculated as the product of a capture rate and market size, over the number of years for the load is likely to remain on the system. The Company calculates this NPV for a basic level, the current level, and aggressive level, and the recommended level. The market plan to be implemented consists of the recommended marketing level for each of the market segments identified.

Because only those marketing programs whose net present value *(NPV)* is positive (the NPV of margins exceeds the NPV of the costs of obtaining those margins) are pursued by the Company, there will be downward pressure on rates as a result of successful implementation of the market plan.

6. Plan Implementation and Evaluation

Implementation of the Supply Plan begins with a determination of the supply and capacity situation from the Supply Planning Group. With this information, an economic dispatch is performed, from which a preliminary purchase and release plan is developed. The preliminary purchase plan is used to solicit long term supply bids from approved business entities. When bids have been received, they are evaluated and additional consideration is given to capacity release. Terms and conditions are negotiated with those business entities whose bids appear to be reasonable. After this negotiation, a deal sheet is completed and provided to the Contract Administration Department. The specifics of the deal are also input into the Company's Gas Management System, which checks the deal for accuracy. Copies are provided to the Accounting and Supply Planning Departments. This initial process continues until all purchases and sales have been completed.

At that time, nominations with pipelines and suppliers can be made and confirmed. Confirmation and contract documents are reviewed and submitted for execution, and management reviews and executes the documents, which are then transferred to the Contracts Administration Department.

With respect to evaluation of the plan, the Company prepares a monthly tracking document that compares forecasted/budgeted and realized values of the gas supply planning process. This document summarizes requirements and supply available to meet a minimum day, a maximum day, and an expected day; projected storage injections and withdrawals; and releases associated with unbundling activities[9].

7. Detail of Audit Period Capacity Arrangements

This section provides a summary of capacity arrangements available, through the various pipelines which East Ohio utilized to meet the demands of its customers during the audit period. Exhibit II-8 in this Chapter II summarizes all of these arrangements in tabular form.

a. Firm Transportation Service

East Ohio reserved firm transportation capacity on ANR, CNGT, Columbia Gas and Panhandle during the audit period. These arrangements provided for delivery of gas supplies directly to East Ohio's citygates. East Ohio reserved firm upstream transportation capacity on Columbia Gulf, which provided for the delivery of gas supplies to Columbia Gas; on Tennessee, Texas Eastern, and Texas Gas, which provided for the delivery of gas supplies to CNGT; and on Trunkline, which provided for the delivery of gas supplies to Panhandle. Rates applicable under East Ohio's interstate pipeline transportation arrangements include a monthly reservation charge applicable to the maximum daily delivery quantity ("MDQ"), a variable charge applicable to volumes delivered, and a fuel retention charge.

ANR Pipeline

East Ohio Gas subscribed to two firm transportation services on the ANR Gas Pipeline during the audit period: Enhanced Transportation Service (ETS) and Firm Transportation Service (FTS-1). The contracts under each of these types of service are discussed below.

East Ohio maintained three separate Enhanced Firm Transportation service agreements with ANR under Rate Schedule ETS (Contract Nos. 03000, 03100, and 100979) during some portion or all of the audit period. Transportation service under Rate Schedule ETS differs from ANR's standard transportation service offering under Rate Schedule FTS-1, which is subsequently discussed, in two major respects. First, shippers such as East Ohio may aggregate delivery points for scheduling and balancing purposes under Rate Schedule ETS. That is, shippers need not separately nominate specific quantities for delivery at each delivery point and balance those separate nominations with actual takes (or consumption) at each delivery point as required under Rate Schedule FTS-1. A shipper need only submit one aggregate nomination for all delivery points, with imbalances determined based on the difference between the shipper's total nomination and total consumption at all delivery points. Without this aggregation provision, a shipper would be exposed to potential imbalance penalties

based on differences between nominations and consumption at each delivery point, although, in total, the shipper may be in balance. This option is not available under FTS-1 service. Second, shippers under Rate Schedule ETS are entitled to maximum hourly deliveries equal to one-sixteenth of nominated daily deliveries. FTS-1 service requires that hourly deliveries be equal to one-twenty-fourth of daily deliveries. The additional hourly flexibility provided under Rate Schedule ETS assists East Ohio in accommodating peak hourly demands which occur on its system.

East Ohio's ETS arrangement with ANR under Contract No. 03000 provides for the firm delivery of gas supplies from ANR's compressor station located in Eunice, Louisiana (commonly referred to as the "Southeast Headstation"), directly to the West Ohio Division. These supplies may be subsequently delivered under ETS Contract No. 03100 to ANR's Michigan storage facilities. East Ohio's MDQ under this arrangement is 9,335 Dth. This provides East Ohio with the ability to transport 3,407,275 Dth annually. Gas supplies transported under this agreement are generally procured upstream of Eunice, Louisiana and are delivered to ANR's Southeast Headstation under gathering Contract No. 53000. Contract No. 03000 was initially executed with an expiration date of October 31, 1996. However, in November 1995, East Ohio elected to extend this arrangement until October 31, 2000. East Ohio pays a discount from the otherwise applicable maximum FERC-approved rates for service under ETS Contract No. 03000.

ETS Contract No. 03100 was utilized to transport gas to and from the storage which East Ohio purchased under ANR FSS Contract No. 33900. These contracts were terminated by agreement between ANR and East Ohio on March 31, 1998. No-Notice Contract No. 99518 was also terminated at that time. Under ETS Contract No. 03100, gas supplies were transported from the citygates of the West Ohio Division to ANR's Michigan storage facilities for injection. This arrangement also provided capacity for the delivery of gas withdrawn from ANR's Michigan storage facilities to the West Ohio Division. Gas supplies transported under this ETS arrangement were initially delivered to the West Ohio Division under ETS Contract No. 03000.

East Ohio's ETS arrangement with ANR under Contract No. 100979 provides for the firm delivery of gas supplies from the Southeast Headstation directly to the West Ohio Division. East Ohio's MDQ under this arrangement is 14,665 Dth. This provides East Ohio with the ability to transport 5,352,725 Dth annually. Gas supplies transported under this agreement are generally procured upstream of Eunice, Louisiana and are delivered to ANR's Southeast Headstation under a gathering agreement. Contract No. 100979 was executed on April 1, 1998 with an expiration date of March 31, 2001.

East Ohio also maintained Contract No. 10950 with ANR under Rate Schedule FTS-1 during the audit period to serve GCR customers. This contract is associated with service to East Ohio's primary service territory. FTS-1 service requires nominations for each delivery point, and nominations for each delivery point are required to balance, within permitted tolerances, actual consumption at each delivery point. In addition, hourly deliveries are required to be equal to one twenty-fourth of daily deliveries.

East Ohio's FTS-1 arrangement with ANR under Contract No. 10950 provides for the firm delivery of gas supplies from ANR's Southeast Headstation directly to East Ohio's citygate at Maumee, Ohio. Prior to the audit period, East Ohio's MDQ under Contract No. 10950 was 70,000 Dth. Effective

November 1, 1996, East Ohio released 26,500 Dth of Contract No. 10950 capacity until October 31, 1997, the duration of the existing contract term. Effective November 1, 1997, East Ohio extended Contract No. 10950 until October 31, 2000 at a reduced MDQ of 43,000 Dth in the Winter and 15,000 Dth in the Summer. This provides East Ohio with the ability to transport 9,703,000 Dth annually. Gas supplies transported under Contract No. 10950 are generally procured upstream of Eunice, Louisiana and are delivered to the Southeast Headstation under ANR gathering Contract No. 60950. East Ohio receives a discount from the otherwise applicable maximum FERC-approved rates for service under FTS-1 Contract No. 10950.

CNG Transmission

East Ohio maintains two separate Firm Transportation No-Notice Service (FTNN) arrangements with CNGT under Rate Schedule FTNN (Contract Nos. 100002 and 700002.) The MDQs under these arrangements throughout the audit period were 440,848 Dth and 597,152 Dth, respectively.

CNGT FTNN Contract No. 100002 is primarily utilized to deliver gas to East Ohio from the upstream interstate pipelines (discussed below) which extend into the Gulf Coast producing region. Of the 440,848 Dth of capacity under Contract No. 100002, 42,500 Dth is not paired with upstream interstate pipeline capacity. This capacity is primarily utilized to transport to East Ohio the Appalachian gas supplies which are often delivered to CNGT under East Ohio's Appalachian gathering capacity.

The FTNN capacity under Contract No. 700002 is utilized to transport gas to and from CNGT's storage facilities. East Ohio purchases storage service from CNGT under Rate Schedules GSS (Contract No. 300003) and GSS II (Contract No. 400002). Together, FTNN and the GSS services give East Ohio no-notice flexibility. Differences between nominated receipt point quantities and actual takes at the citygate under East Ohio's FTNN transportation arrangements with CNGT are accommodated as unnominated storage injections or withdrawals under Rate Schedules GSS and GSS II. Gas delivered to storage under FTNN Contract No. 700002 is generally procured in the Gulf Coast region and is initially transported under CNGT FTNN Contract No. 100002 to East Ohio's citygate. Reservation charges are applicable under Contract No. 700002 only during the winter period. In addition, no variable transportation charges are incurred on quantities delivered to storage for injection under either Contract No. 100002 or 700002. Variable transportation charges under both arrangements are applicable to gas supply quantities actually delivered to the East Ohio system.

Columbia Gas Transmission

East Ohio maintains two separate firm transportation service (FTS) arrangements with Columbia Gas (Contract Nos. 38117 and 38184) as well as a Storage Service Transportation (SST) agreement (Contract No. 38090). The FTS arrangements are utilized to serve the West Ohio Division. The MDQ under these arrangements are 32,651 Dth and 3,000 Dth, respectively. Gas supplies delivered under these arrangements are transported directly to East Ohio's citygate, and may subsequently be transported under East Ohio's SST storage transportation arrangement (Contract No. 38090) with Columbia Gas and injected into storage under East Ohio's FSS storage arrangement (Contract No. 38081) with Columbia Gas.

FTS capacity under Contract No. 38117 is generally utilized in conjunction with firm transportation capacity reserved on Columbia Gulf, which currently provides for a maximum daily entitlement of 33,255 Dth. When utilized in conjunction with capacity on Columbia Gulf, gas supplies transported under this FTS arrangement are generally procured in the Gulf Coast area. When not utilized in conjunction with Columbia Gulf capacity, Appalachian gas supplies may be purchased. Contract No 38117 provides the Company with the ability to transport 11,917,615 Dth annually.

Gas supplies delivered under FTS Contract No. 38184 are generally transported directly to East Ohio's citygate. Appalachian gas supplies are generally purchased and delivered under this arrangement. Contract No. 38184 provides East Ohio with the ability to transport 1,095,000 Dth annually. East Ohio pays Columbia Gas' maximum FERC-approved rates for transportation service under FTS Contract Nos. 38117 and 38184.

Storage service transportation under Rate Schedule SST (Contract No. 38090) is utilized to transport gas to and from Columbia Gas' storage facilities and East Ohio's citygate. East Ohio purchases storage from Columbia Gas under Rate Schedule FSS (Contract No. 38081). Storage service purchased from Columbia Gas is used to serve East Ohio's West Ohio Division. East Ohio may also use its SST capacity to deliver gas directly to its citygate. Together, SST and FSS service give East Ohio no-notice flexibility. Differences between nominated receipt point quantities and actual takes at the citygate under East Ohio's various transportation arrangements with Columbia Gas are accommodated as unnominated storage injections or withdrawals under Rate Schedules SST and FSS. Gas delivered under East Ohio's SST capacity is generally procured in the Gulf Coast region and is initially transported to FSS storage under Columbia Gas FTS Contract No. 38184 or Contract No. 38117 and Columbia Gulf Contract No. 38001.

East Ohio's SST MDQ is 60,944 Dth during the months of October through March (storage withdrawal season), and 30,472 Dth during the months of April through September (storage injection season). This provides East Ohio with the ability to transport 16,668,184 Dth annually, although East Ohio's seasonal storage entitlement is only 2,924,319 Dth.

Panhandle Eastern Pipe Line

East Ohio maintained two separate firm transportation service agreements with Panhandle under Firm Transportation Service Rate Schedule FTS during the audit period (Contract Nos. 011465 and 011468). These arrangements serve East Ohio's primary service territory. East Ohio's arrangement with Panhandle under Contract No. 011465 provides for the firm delivery of gas supplies from the Mid-Continent producing region directly to East Ohio's citygate. East Ohio's MDQ under Contract No. 011465 was 97,600 Dth of capacity during the winter and 54,000 Dth of capacity during the summer. This provides East Ohio the ability to transport 27,755,000 Dth annually.

East Ohio's FTS arrangement with Panhandle under Contract No. 011468 provides for the firm delivery of gas supplies from Trunkline Gas Pipeline at Tuscola, Illinois to East Ohio's citygate. East Ohio's MDQ under Contract No. 011468 was 36,778 Dth during the winter and 16,353 Dth during the summer. This provides East Ohio the ability to transport 9,480,000 Dth annually. East Ohio

receives a discount from the otherwise applicable maximum FERC-approved rates for service under each of its Panhandle FTS arrangements.

Columbia Gulf Transmission

Firm transportation service on Columbia Gulf under Rate Schedule FTS-1 (Contract No. 38001) provides capacity for the firm delivery of gas supplies from the Gulf Coast (at Rayne, Louisiana) to Columbia Gulf's interconnect with Columbia Gas at Leach, Kentucky. Final delivery of these supplies to East Ohio's citygate is effectuated by Columbia Gas. The MDQ under East Ohio's FTS-1 arrangement is 33,255 Dth during the winter months of November through March, and 23,058 Dth during the summer months of April through October. Through this contract, East Ohio has the ability to transport 9,955,917 Dth annually.

Tennessee Gas Pipeline

East Ohio maintained two separate firm transportation arrangements with Tennessee under Rate Schedule FT-A during the audit period (Contract Nos. 640 and 3906). The MDQs under Contract Nos. 640 and 3906 are 115,000 Dth and 48,385 Dth, respectively. These contracts provide for the firm delivery of gas supplies in varying proportional quantities from Tennessee Zone 0 (Texas) and Zone I (Louisiana) to CNGT's facilities in Zone 3. The Tennessee FT-A contracts provide East Ohio with the ability to transport 59,635,525 Dth annually. East Ohio pays the maximum FERC-approved rates for FT-A service.

Texas Eastern Transmission

Prior to July of 1998, East Ohio maintained three separate Firm Transportation Service arrangements with Texas Eastern under Rate Schedule FT-1 during the audit period. The contracts and applicable MDQs (Dth) are Contract No. 800216, 50,000 Dth; Contract No 800349, 20,762 Dth, and Contract No. 800359, 44,127 Dth. East Ohio notified Texas Eastern of its intention to terminate these contracts effective October 31, 2000. Accordingly, on July 1, 1998, East Ohio entered into an agreement with Texas Eastern whereby these entitlements were combined into one agreement (Contract No. 830046 with a total MDQ of 114,889 Dth). This contract provides East Ohio with the ability to transport 41,934,485 to CNGT. East Ohio pays the maximum FERC-approved rates for FT-1 service.

East Ohio also purchases Contract Demand Service from Texas Eastern under Rate Schedule CDS (Contract No. 800360). CDS is a no-notice service which allows a shipper to take deliveries in excess of nominated quantities up to their MDQ. Under CDS service, a shipper is required to return to Texas Eastern quantities in excess of nominations within five days. CDS Contract No. 800360 provides for the firm delivery of gas supplies from Texas Eastern's production zones to CNGT. East Ohio's CDS contract provides it with the ability to transport 10,950,000 Dth annually. East Ohio pays the maximum FERC-approved rates for CDS service.

Texas Gas Pipeline

Firm Transportation Service under Texas Gas Rate Schedule FT provides for the firm delivery of gas supplies from the Gulf Coast producing region to CNGT. During the audit period, East Ohio maintained two separate arrangements with Texas Gas (Contract Nos. 3933 and 3941). The MDQ under East Ohio's FT arrangements with Texas Gas at the beginning of the audit period totaled 76,921 Dth.

Trunkline Gas Pipeline

Firm Transportation Service (FT) under Trunkline Rate Schedule FT provides for the firm delivery of gas supplies from the Gulf Coast producing region to Panhandle at Tuscola, Illinois. The applicable MDQ under East Ohio's arrangement with Trunkline (Contract No. 012270) is 36,810 Dth during the winter period and 16,360 Dth during the summer period. This provides East Ohio with the ability to transport 9,059,350 Dth to Panhandle annually. East Ohio receives a discount from the maximum FERC-approved rate for Trunkline FT service.

b. Gathering Service

East Ohio purchases firm gathering service from ANR and CNGT. Rates for firm gathering service include a monthly reservation charge applicable to the MDQ. East Ohio receives a discount from the maximum FERC-approved rate for gathering service from ANR, but pays the maximum rate for CNGT gathering service.

ANR Pipeline

East Ohio maintained two separate Firm Gathering Service arrangements with ANR under rate schedule GF-1 (Contract Nos. 53000 and 60950) during the audit period. These agreements provide capacity for the delivery of gas from the wellhead to ANR's Southeast Headstation in Eunice, Louisiana.

Gas supplies delivered to ANR's Southeast Headstation under gathering Contract No. 53000 are delivered to East Ohio's citygate under ETS Contract No. 03000. The MDQ under gathering Contract No. 53000 is 9,335 Dth, which is equivalent to East Ohio's maximum daily entitlement under ETS Contract No. 03000. This provides East Ohio with the ability to gather 3,407,275 Dth annually.

Gas supplies delivered to ANR's Southeast Headstation under GF-1 Contract No. 60950 are subsequently delivered to East Ohio's citygate under FTS-1 Contract No. 10950. The MDQ under GF-1 Contract No. 60950 is 15,000 Dth. This provides East Ohio with the ability to gather 5,475,000 Dth annually.

CNG Transmission

Firm Gathering Service under CNGT Rate Schedule GF provides for the firm delivery of Appalachian

gas supplies from the wellhead to CNGT's transmission facilities, where it is subsequently transported under CNGT FTNN Contract No. 100002. The MDQ under East Ohio's gathering arrangement with CNGT is 42,500 Dth. This provides East Ohio with the ability to gather 15,512,500 Dth annually.

c. Storage Service

East Ohio subscribed to firm contract storage service with ANR, CNGT, Columbia Gas and the Egan Storage Company. East Ohio received a discount from the otherwise applicable maximum FERC-approved rates for storage service from ANR, but paid the maximum rates for storage from CNGT and Columbia Gas. East Ohio also operates its own on-system storage facilities.

ANR Pipeline

East Ohio purchased annual Firm Storage Service (FSS) from ANR under Contract No. 33900 during a portion of the audit period. These arrangements were utilized to service the West Ohio Division. Under annual storage service, East Ohio is entitled to inject or withdraw gas from storage on any day during the year, regardless of season. However, total injections and withdrawals are limited to 1.42 times East Ohio's annual storage capacity entitlement. In addition, the deliverability available under annual storage service is a function of storage inventory levels, and shippers subscribing to FSS service must reduce their gas in storage inventory to 20 percent of capacity by April 1 of each year. Gas stored under FSS Contract No. 33900 is delivered to and from storage under ETS Contract No. 03100. Both of these contracts expired March 31, 1998 and were not renewed by East Ohio.

CNG Transmission

East Ohio purchased General Storage Service from CNGT under Rate Schedules GSS and GSS II during the audit period. In conjunction with FTNN transportation service (Contract No. 700002), GSS service provides East Ohio with no-notice service. East Ohio utilizes GSS and GSS II service for seasonal load management purposes, to capture the benefits of seasonal price differences, and to balance flowing supplies and requirements in the northeastern and southeastern service territories. Monthly charges for GSS and GSS II service include a deliverability charge applicable to the maximum daily withdrawal quantity, a capacity charge applicable to the seasonal capacity reservation amount, variable charges applicable to injection and withdrawal quantities and a charge for storage losses.

Columbia Gas Transmission

East Ohio purchases Firm Storage Service from Columbia Gas under Rate Schedule FSS (Contract No. 38081) to serve its West Ohio Division. In conjunction with SST transportation service (Contract No. 38090), FSS storage service provides East Ohio with No-Notice service. In addition to accommodating daily imbalances between actual takes at the West Ohio Division's citygates and nominated deliveries, East Ohio utilizes FSS service for seasonal load management purposes and to capture seasonal price differences. FSS and SST services are also surrogates for more expensive year-round firm pipeline capacity under Columbia Gas Rate Schedule FTS.

The maximum daily contract injection quantity under East Ohio's FSS agreement applicable during the months of April through September is 30,472 Dth. The maximum daily withdrawal quantity applicable during the months of October through March is 60,944 Dth. The storage capacity reservation, or seasonal contract quantity ("SCQ") is 2,924,319 Dth. This provides East Ohio with 48 days of maximum withdrawal capabilities. Out-of-season injections and withdrawals are permitted; however, total monthly injections are limited to a percentage of East Ohio's capacity reservation. During the winter season, monthly injections are generally limited to 10 percent of East Ohio's capacity reservation, while during the summer, monthly injections are generally limited to 20 percent. The maximum withdrawal quantity declines as the amount of gas in storage inventory declines. In addition, maximum and minimum net monthly withdrawal quantity restrictions are imposed by Columbia Gas during the winter season. Finally, shippers purchasing FSS service must limit storage inventory levels to a percent of SCQ throughout the year. Monthly charges for FSS service include a deliverability charge applicable to the maximum daily injection or withdrawal quantity, a capacity charge applicable to the seasonal capacity reservation amount, variable charges applicable to injection and withdrawal quantities, and a charge for storage losses.

Egan Gas Storage Company

East Ohio purchases firm Storage Service from Egan under Rate Schedule LA-1. Egan's storage facilities are located in Louisiana. The delivery of gas supplies to and from Egan storage must be separately arranged. Delivery alternatives include ANR, Tennessee, Texas Gas and Trunkline. Egan storage increases the reliability of East Ohio's sales service by providing insurance against flowing supply cutbacks, and also provides protection against short-term price spikes.

The maximum daily injection quantity under East Ohio's arrangement with Egan is 30,000 Dth. The maximum daily withdrawal quantity is 60,000 Dth. East Ohio may inject or withdraw gas from Egan storage on any day. The storage capacity reservation is 900,000 Dth. There are no injection and withdrawal constraints other than the maximum daily injection and withdrawal limits. Rates for Egan storage service include a monthly reservation fee applicable to the storage capacity reservation, variable injection and withdrawal fees, and a fuel charge.

8. Peak Period Performance

The gas supply and capacity assets acquired for the EOG system must be consistent with the Company's fundamental goal of providing reliable service, consistent with least cost principles, to its sales and transportation customers. There are a number of dimensions to demand that must be addressed when evaluating the appropriate design of an LDC's supply and capacity portfolio. These include variations in intra-day requirements, design peak day requirements, requirements related to a sequence of multiple peak and near peak days, as well as design cold winter and warm winter requirements. All but the warm weather related dimensions have an impact on supply reliability. Substantial intra-day gas requirement variations result from customer usage patterns. Typically, peak hourly demands are experienced in early morning and evening hours and those demands must be anticipated by EOG's Gas Control area and system line pressures increased by increasing gas flow into the system prior to load increase. Although supply and capacity contracts are constructed in

terms of daily quantities, the ability to meet peak hour flow requirements is as important as meeting peak day requirements. EOG derives peak hourly flow flexibility from a number of sources, including interstate pipeline capacity hourly receipt flexibility provided by no-notice services, EOG's own ability to vary the injection or withdrawal rates associated with operation of its on-system storage resources, and management of line pack.

Design peak day capability is perhaps the most traditional means of measuring an LDC's capability to reliably meet its customers' requirements. Generally, design peak day demand criteria are established based on actual severe weather conditions experienced in the LDC's service territory, and the corresponding customer gas requirements on such a day are considered to be the maximum demand that would be experienced by the system over a 24-hour period. The sum of all supplies simultaneously available to the LDC (adjusted for any potential reductions that may be experienced under extreme cold weather conditions) must be sufficient to meet customer gas requirements on a design peak day. The ability of the system to meet gas demand on a peak day is of critical importance, but it must be recognized that weather patterns that produce peak days usually involve multiple days of extremely cold weather; that is, peak days usually occur during periods of extremely cold weather of several days' duration and are not generally isolated one day occurrences. Due to the nature of EOG's supply assets (EOG has a high reliance on contract storage as well as its own on-system base and peaking storage pools during extreme cold weather conditions), the possibility of multiple peak day/near peak day sequential occurrences must be taken into account in the supply and capacity planning and acquisition process.

9. Price Risk Management

East Ohio Gas does not attempt to stabilize commodity prices for any of its classes of customers through any form of price risk management. EOG does not engage in any of the traditional price hedging instruments such as futures, swaps, options, etc[10]. They do engage in "passive" hedging through the use of index-based pricing and a mix of short and long term supply contracts. Liberty feels it is appropriate that traditional price risk management is not used because of the Company's role as a merchant/supplier of last resort and the associated obligations to maintain reliability at all costs.

EOG has commissioned a comprehensive study of price risk management, "Hedging to Reduce Gas Cost Volatility", by GSC Energy[11]. This study was thorough and will provide EOG with sufficient guidance in the area of price risk management when the Company feels it is appropriate to engage in these activities.

C. Conclusions

1. The organization of the planning process at EOG is well thought out, well conceived, and well implemented.

On the basis of the facts and evaluation discussed above, Liberty concludes that the planning process at EOG is well thought out, well conceived, and well implemented. As evidenced by the Company's vision statement, goals and objectives are clear. Furthermore, the decision process for adopting a plan is clearly laid out and followed. Many departments are involved, but coordination of those departments is apparent in the process. Upper management is also apprized of the process, and approvals are appropriate. Inherent in the structure is that procurement efforts are linked to the plan. Finally, gas supply planning is coordinated with other areas of the corporation.

2. While there have been attempts to incorporate risk into the planning process, these do not appear to have been entirely successful. (*Recommendation 1*)

Risks are appropriately factored into many elements of the gas supply planning process. For example, short- and long-term gas costs and availability are considered when developing the Company's least-cost gas supply portfolio. Probabilities of demand levels, resource availability, and weather conditions are incorporated into the process. Multiple scenarios reflecting the migration of small volume sales customers to small volume transportation service are considered. And the Company minimizes its reliance upon any particular supplier, subject to system requirements and cost considerations. However, further incorporation of probabilities and risk appear to be appropriate. For example, in its primary study on reliability (the RJRA study described above), demand is assumed to be 100 percent reliable. This is a heroic, and obviously incorrect, assumption. Furthermore, the interplay of demand and supply reliability that is inherent in calculations of Expected Unserved Energy and Loss of Load Probability that are a key element of the electric industries' reliability analysis (upon which the RJRA analysis was patterned) are missing. Finally, the use of base and use factors, while industry practice, results in an unreliable forecast from year to year.

This lack of statistical rigor has resulted in the Company changing its design day, on the recommendation of a prior audit, with little or no analytical foundation. A determination of the appropriate design day is beyond the scope of this audit, and this audit takes no position on what that design day should be. However, it is the change in this important planning parameter with no analytical support to which this current audit objects.

3. The Company appropriately balances demand and supply.

Except for the lack of probability analysis noted above, the Company's demand forecasting techniques are appropriate and subject to annual Commission review and approval. The supply portfolio also seems appropriate, subject to the same concerns with the inclusion of probabilistic analysis. The resulting relationship of anticipated supply and demand conditions, as shown above, also indicates that the Company's resources are in balance with demand conditions.

4. **The Company has been presented with a unique opportunity to optimize its gas supply portfolio to accommodate further customer choice initiatives. However, in order to capitalize on this opportunity, one of two strategies must be pursued. Either the Company must petition the Commission to modify or clarify its supplier of last resort obligation or the Company must implement a "comparable capacity", or similar feature, in its transportation agreements with small volume transporters.** (*Recommendation 2*)

As described above, contracts for 85 percent of EOG's interstate transportation capacity and 83 percent of its interstate pipeline storage capacity will be expiring in the next two years, creating an opportunity to substantially restructure the system supply capacity portfolio. However, there remains considerable regulatory uncertainty on two issues that have a direct bearing on whether that opportunity can be seized. These issues are the responsibility for supplier of last resort and whether EOG will be required to (or allowed to) exit the merchant function. To the extent that the LDC is not relieved of supplier of last resort or merchant obligations, it will be required to maintain higher levels of capacity than it would otherwise be required to hold to meet the needs of sales customers.

This need to hold redundant capacity can be avoided if EOG has no supplier of last resort or merchant obligations. Alternatively, if the Company is successful in requiring third party transporters to maintain citygate capacity comparable to that which EOG would hold on behalf of sales customers, these concerns are also minimized.

5. **There is significant and increasing flexibility in the Company's supply planning process.**

Due to the specter of deregulation and further unbundling, supply planning flexibility is critical. The Company has developed a mechanism to forecast the impact of the migration from sales to transportation and has also proposed a comparable capacity requirement to provide them with the necessary planning flexibility. In addition, the Company plans to hold sufficient No Notice service to handle daily swings.

6. **The Company's approach to planning for new markets is reasonable.**

The Company has promoted sales for a wide variety of markets, as demonstrated in Exhibit II-10, above. Thus, the scope of the marketing effort appears reasonable. In addition, there is a formal benefit/cost evaluation of new markets to pursue. This has had a positive impact on the rates of sales customers. Finally, the Company has engaged in efforts to retain industrial customers, either as sales or transportation customers. This, too, is consistent with a least cost energy strategy

7. **There is a regular and appropriate review of the Company's plan as events unfold.**

As described above, the plan document filed with the Commission compares actual and forecasted volumes and actual and forecasted supply. In addition, the plan is reviewed by senior management every month, and changes are incorporated into the forecast when the impact is likely to be significant and long lasting. The objectives of the planning process appear to be being met.

8. **The peak day planning process suffers from the same deficiencies as the supply planning process.** (*Recommendation 1*)

The Company has developed a curtailment plan for system emergencies. In addition, the Company's Customer Choice program includes "onerous" penalties for non-delivery during periods of system emergency. However, this audit questions that planning for the peak day because it does not include a rigorous probability analysis to determine requirements.

D. Recommendations

1. **The Company must put greater emphasis on probability analysis in its planning process for peak day, seasonal, and annual supply.** (*Conclusions 2 and 8*)

The recommendation is meant to include at least weather probabilities, probability of forecast error, probability of weather forecast error, and different models for sendout. Liberty recommends that this be done by Monte Carlo experiments. A Monte Carlo experiment begins with the assumption that the process being simulated obeys the mathematical description developed to explain it, including a normally distributed error. Thus, for example, the Monte Carlo simulation of weather assumes that the temperature during any given gas day is equal to its historical mean and some error structure. Using the error structure and a random number generator to generate standard normal deviates that come from the same population as the predicted error, a large number of possible weather patterns is generated. These weather patterns are in turn combined with estimates of the relationship of sendout to weather and a distribution of possible sendout conditions results.

The value of this type of analysis is that combinations of stochastic processes (weather and sendout, for example) produce a distribution that is not generally known. Generating a large number of Monte Carlo trials allows one to produce this distribution without knowing its underlying parameters. Probabilistic statements can be made based on the resulting distribution. Thus, for example, combining weather and sendout information allows one to make statements regarding the probability of any periodic sendout condition occurring. This is particularly valuable for planning because it provides a systematic and rational basis for determining peaking and balancing needs. The effects of weather forecasting error can also be incorporated into short-term forecasts to determine the resources that the Company must hold to meet demands under a wide variety of conditions.

The Monte Carlo technique can also be used to determine the gas supply resources that will be needed for system operations if all customers on the system migrate from sales to delivery service

(operational balancing requirements). Clearly, the Company will need to hold resources to meet unexpected changes in load that occur because of normal weather variation. The Company will also need to hold resources because, even if the weather were known with certainty, it is not possible to forecast sendout with complete certainty. However, the Company will also need to hold resources because the forecasted weather upon which the day's nominations are made will rarely match the weather experienced on that day. In other words, in addition to the sources of forecast error attributable to weather and forecasting, the Company's daily projected sendout will differ from realized sendout because of an inability to forecast weather.

2. **The Company must pursue a strategy to minimize stranded cost exposure for remaining sales customers, and must do so in a manner that ensures customer choice initiatives are not thwarted.** (*Conclusion 4*)

The movement of customers from sales to transportation service has clear stranded cost consequences. The Company can protect its shareholders and remaining sales customers from the effects of this migration by maintaining mandatory capacity assignment, or some other stranded cost surcharge mechanism. However, it implements such a strategy at the potential cost of inhibiting customer choice initiatives.

The clearly better strategy is never to incur the stranded costs in the first place, something that the Company is in a unique position to be able to do because of the large number of contracts subject to renewal in the next two years. The comparable capacity strategy is one way to avoid incurring those potential stranded costs. While being relieved of supplier of last resort and merchant responsibilities is another way to minimize stranded costs, the Company would likely continue to hold capacity anyway for system integrity purposes.

ENDNOTES

1. Information obtained in initial Company interviews, October 5, 1999.

2. Response to The Liberty Consulting Group Data Requests, Set No. 1 - Supplement, LCG - 10 - Supplement.

3. Response to The Liberty Consulting Group Data Requests, Set No. 1 - Supplement, LCG - 1 - Supplement.

4. Information obtained in follow-up Company interviews, November 9, 1999.

5. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG - 16.

6. Response to The Liberty Consulting Group Data Requests, Set No. 1 - Supplement, LCG - 9 - Supplement.

7. Response to The Liberty Consulting Group Data Requests, Set No. 1 - Supplement, LCG - 11- Supplement.

8. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG - 19.

9. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG - 18.

10. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG - 28.

11. Response to The Liberty Consulting Group Data Requests, Set No. 1 - Supplement, LCG - 9.

EXHIBIT II-2

Summary of Demand Forecasts by Customer Sector
East Ohio Gas

			Industrial Sales											
Year	Residential Sales	Commercial Sales	SIC 20 Food and Kindred Products	SIC 28 Chemical and Allied Products	SIC 29 Petroleum and Coal Products	SIC 30 Rubber and Misc. Plastics	SIC 32 Stone, Clay, and Glass Products	SIC 33 Primary Metals	SIC 34 Fabricated Metal Products	SIC 35 Non-Electric Machinery	SIC 36 Electrical & Electronic Machinery	All Other Industrial	Total Industrial	Total
1999	150,089	32,179	21	102	35	94	50	95	356	146	38	789	1,726	183,994
2000	151,990	32,750	21	104	35	95	50	96	361	148	38	801	1,749	186,489
2001	152,158	32,933	21	104	35	95	50	96	361	148	38	801	1,749	186,840
2002	153,213	33,312	21	104	35	96	51	97	363	149	38	806	1,760	188,285
2003	154,173	33,692	21	105	36	97	51	98	365	150	39	809	1,771	189,636
2004	156,071	34,277	22	106	36	98	52	99	370	152	39	820	1,794	192,142
2005	156,117	34,455	22	106	36	98	52	99	370	152	39	820	1,794	192,366
2006	156,951	34,839	22	107	36	99	52	100	372	152	39	826	1,805	193,595
2007	157,692	35,225	22	107	37	99	52	100	375	153	40	831	1,816	194,733
2008	158,459	35,869	22	110	37	101	53	103	384	157	41	851	1,859	196,187
2009	159,070	36,258	23	111	38	102	54	103	386	158	41	855	1,871	197,199
Growth Rate	0.58%	1.20%	0.91%	0.85%	0.83%	0.82%	0.77%	0.81%	0.81%	0.79%	0.76%	0.81%	0.81%	0.70%

EXHIBIT II-3

Summary of Requirements
East Ohio Gas

Year	Total Sales	Company Use	Net Injections to Storage	Losses and UFG	Total Demand
1999	183,994	2,877	1,579	5,520	193,970
2000	186,489	2,877	-	5,595	194,961
2001	186,840	2,877	-	5,605	195,322
2002	188,285	2,877	-	5,649	196,811
2003	189,636	2,877	-	5,689	198,202
2004	192,142	2,877	-	5,764	200,783
2005	192,366	2,877	-	5,771	201,014
2006	193,595	2,877	-	5,808	202,280
2007	194,733	2,877	-	5,842	203,452
2008	196,187	2,877	-	5,886	204,950
2009	197,199	2,877	-	5,916	205,992
Growth Rate	0.70%			0.70%	0.60%

EXHIBIT II-4

Summary of Design Day Forecasts by Customer Sector
East Ohio Gas

Year	Residential Sales	Commercial Sales	Total Industrial	UFG	Total
1999	1,230	307	9	388	1,934
2000	1,628	359	12	60	2,059
2001	1,640	361	12	60	2,073
2002	1,652	365	12	61	2,090
2003	1,664	369	12	61	2,106
2004	1,676	376	13	62	2,127
2005	1,689	378	13	62	2,142
2006	1,701	382	13	63	2,159
2007	1,714	386	13	63	2,176
2008	1,726	393	13	64	2,196
2009	1,739	397	13	64	2,213
Growth Rate	3.52%	2.60%	3.75%	-	1.36%

EXHIBIT II-5

Summary of Supply Sources
East Ohio Gas

Year	Interstate Supply Long-Term	Interstate Supply Short-Term	Ohio Field Purchases	Total Supplies
1999	45,300	129,407	19,263	193,970
2000	45,531	132,093	17,337	194,961
2001	45,616	134,103	15,603	195,322
2002	45,963	136,805	14,043	196,811
2003	46,288	139,275	12,639	198,202
2004	46,891	142,517	11,375	200,783
2005	46,945	143,831	10,238	201,014
2006	47,241	145,825	9,214	202,280
2007	47,514	147,645	8,293	203,452
2008	47,864	149,622	7,464	204,950
2009	48,108	151,166	6,718	205,992

EXHIBIT II-6

Summary of Design Day Supply Sources
East Ohio Gas

Year	Interstate Supply		Ohio Field Purchases	Storage Withdrawals	Total Supplies
	Long-Term	Short-Term			
1999	113	278	56	1,487	1,934
2000	302	292	39	1,330	1,963
2001	302	292	35	1,330	1,959
2002	304	290	32	1,330	1,956
2003	307	287	29	1,330	1,953
2004	311	283	26	1,330	1,950
2005	311	283	23	1,330	1,947
2006	313	281	21	1,330	1,945
2007	315	279	19	1,330	1,943
2008	317	277	17	1,330	1,941
2009	319	275	15	1,330	1,939

EXHIBIT II-7

Summary of Supply Source Prices
East Ohio Gas

Year	Interstate Supply		Ohio Field Purchases	Total Supplies
	Long-Term	Short-Term		
1999	$ 3.61	$ 3.60	$ 2.91	$ 3.54
2000	$ 3.66	$ 3.65	$ 2.95	$ 3.59
2001	$ 3.69	$ 3.68	$ 2.97	$ 3.63
2002	$ 3.72	$ 3.71	$ 2.99	$ 3.66
2003	$ 3.78	$ 3.77	$ 3.04	$ 3.73
2004	$ 3.82	$ 3.81	$ 3.07	$ 3.77
2005	$ 4.03	$ 4.02	$ 3.24	$ 3.98
2006	$ 4.25	$ 4.24	$ 3.42	$ 4.20
2007	$ 4.49	$ 4.48	$ 3.61	$ 4.45
2008	$ 4.80	$ 4.79	$ 3.86	$ 4.76
2009	$ 5.13	$ 5.12	$ 4.13	$ 5.09

Exhibit II-8
East Ohio Gas Company
Summary of Resource Entitlements

CITYGATE CAPACITY

Pipeline/Service	Contract No	Winter 1996-1997 Daily Entitlement Winter Capacity	Summer Capacity	Winter Season Volumes	Annual Volumes	Winter 1997-1998 Daily Entitlement Winter Capacity	Summer Capacity	Winter Season Volumes	Annual Volumes	Winter 1998-1999 Daily Entitlement Winter Capacity	Summer Capacity	Winter Season Volumes	Annual Volumes	Contract Expiration
ANR Pipeline														
FTS/FSS	03100/33900	7,969	4,233	754,314	754,314	7,969	4,233	754,314	754,314	-	-	-	-	3/31/98
ETS	03000	9,335	9,335	1,409,585	3,407,275	9,335	9,335	1,409,585	3,407,275	9,335	9,335	1,409,585	3,407,275	10/31/00
ETS	100979	-	-	-	-	-	-	-	-	14,665	14,665	2,214,415	5,352,725	3/31/01
FTS-1	10950	70,000	15,000	10,570,000	13,780,000	43,000	15,000	6,493,000	9,703,000	43,000	15,000	6,493,000	9,703,000	10/31/00
CNG Transmission														
FTNN	100002	440,848	440,848	66,568,048	160,909,520	440,848	440,848	66,568,048	160,909,520	440,848	440,848	66,568,048	160,909,520	3/31/01
FTNN/GSS	700002/300003	584,692	-	26,131,873	26,131,873	584,692	-	26,131,873	26,131,873	584,692	-	26,131,873	26,131,873	3/31/01
FTNN/GSS II	700002/400002	12,460	-	919,397	919,397	12,460	-	919,397	919,397	12,460	-	919,397	919,397	3/31/01
Columbia														
FTS	38117	32,651	32,651	4,930,301	11,917,615	32,651	32,651	4,930,301	11,917,615	32,651	32,651	4,930,301	11,917,615	10/31/04
FTS	38184	3,000	3,000	453,000	1,095,000	3,000	3,000	453,000	1,095,000	3,000	3,000	453,000	1,095,000	10/31/03
SST/FSS	38090/38081	60,944	-	2,924,319	2,924,319	60,944	-	2,924,319	2,924,319	60,944	-	2,924,319	2,924,319	10/31/04
Panhandle Eastern														
FT	011465	98,000	55,000	14,796,000	27,901,000	97,600	54,600	14,737,600	27,755,000	97,600	54,600	14,737,600	27,755,000	10/31/99
FT	011468	30,000	10,000	4,530,000	7,290,000	36,000	16,000	5,436,000	9,480,000	36,000	16,000	5,436,000	9,480,000	10/31/99
FT	010167					14,400				14,400				
Local Drip Production		74,947				56,114				48,218				3/31/01
On System Storage		1,124,280				1,124,280				1,124,280				3/31/01
TOTAL		2,549,126				2,523,293				2,522,093				

Exhibit II-8
East Ohio Gas Company
Summary of Resource Entitlements

UPSTREAM CAPACITY

Pipeline/Service	Contract No	Winter 1996-1997 Daily Entitlement Winter Capacity	Summer Capacity	Winter Season Volumes	Annual Volumes	Winter 1997-1998 Daily Entitlement Winter Capacity	Summer Capacity	Winter Season Volumes	Annual Volumes	Winter 1998-1999 Daily Entitlement Winter Capacity	Summer Capacity	Winter Season Volumes	Annual Volumes	Contract Expiration
ANR Pipeline														
GF-1	53000	9,335	9,335	1,409,585	3,407,275	9,335	9,335	1,409,585	3,407,275	9,335	9,335	1,409,585	3,407,275	10/31/00
GF-1	60950	15,000	15,000	2,265,000	5,475,000	15,000	15,000	2,265,000	5,475,000	15,000	15,000	2,265,000	5,475,000	10/31/00
CNG Transmission														
Gathering	100002	42,500	42,500	6,417,500	15,512,500	42,500	42,500	6,417,500	15,512,500	42,500	42,500	6,417,500	15,512,500	3/31/01
Columbia Gulf														
FTS-1	38001	33,255	23,058	5,021,505	9,955,917	33,255	23,058	5,021,505	9,955,917	33,255	23,058	5,021,505	9,955,917	10/31/04
Egan Gas Storage														
LA-1 Storage	0103	60,000	60,000	900,000	900,000	60,000	60,000	900,000	900,000	60,000	60,000	900,000	900,000	4/1/06
Tennessee Gas														
FT-A	640	115,000	115,000	17,365,000	41,975,000	115,000	115,000	17,365,000	41,975,000	115,000	115,000	17,365,000	41,975,000	11/1/00
FT-A	3906	48,385	48,385	7,306,135	17,660,525	48,385	48,385	7,306,135	17,660,525	48,385	48,385	7,306,135	17,660,525	11/1/00
Texas Eastern														
FT-1	800216	50,000	50,000	7,550,000	18,250,000	50,000	50,000	7,550,000	18,250,000					10/31/00
FT-1	800349	20,762	20,762	3,135,062	7,578,130	20,762	20,762	3,135,062	7,578,130					10/31/00
FT-1	800359	44,127	44,127	6,663,177	16,106,355	44,127	44,127	6,663,177	16,106,355					10/31/00
FT-1	830046									114,889	114,889	17,348,239	41,934,485	10/31/00
CDS	800360	30,000	30,000	4,530,000	10,950,000	30,000	30,000	4,530,000	10,950,000	30,000	30,000	4,530,000	10,950,000	10/31/00
SCT	800168	1,409	1,409	212,759	514,285	1,409	1,409	212,759	514,285	1,409	1,409	212,759	514,285	10/31/02
Texas Gas														
FT	3933	73,763	73,763	11,138,213	26,923,495	73,763	73,763	11,138,213	26,923,495	73,763	73,763	11,138,213	26,923,495	10/31/05
FT	3941	3,158	3,158	476,858	1,152,670	3,158	3,158	476,858	1,152,670	3,158	3,158	476,858	1,152,670	10/31/05
Trunkline														
FT	012270	36,810	16,360	5,558,310	9,059,350	36,810	16,360	5,558,310	9,059,350	36,810	16,360	5,558,310	9,059,350	10/31/99

EXHIBIT II-9

Timetable for Capacity Recontracting
East Ohio Gas Company

Date	Capacity	Volume		Notes
3/31/99	CNG Transmission GSS Storage	597,152	Dth/day	2 year termination notice
10/31/99	Panhandle Eastern FT	133,600	Dth/day	Expiration
10/31/99	Tennessee Gas Transmission FT	163,385	Dth/day	1 year termination notice
3/31/00	CNG Transmission FTNN	440,848	Dth/day	1 year termination notice
3/31/00	CNG Transportation FTNN - GSS	597,152	Dth/day	1 year termination notice
3/31/00	CNG Transmission Gathering	42,500	Dth/day	1 year termination notice
10/31/00	Tennessee Gas Transmission FT	163,385	Dth/day	Expiration
10/31/00	Texas Eastern Transmission FT	144,889	Dth/day	Expiration
10/31/00	ANR Pipeline FTS & ETS	24,335	Dth/day	Expiration
3/31/01	CNG Transmission Storage & FT	1,080,500	Dth/day	Expiration
3/31/01	ANR Pipeline ETS	14,665	Dth/day	Expiration

Exhibit II-10
East Ohio Gas Market Segments by Customer Class

Class	Segment
Residential	Existing Space Heating
Residential	Existing Water Heating
Residential	Existing White Goods
Residential	Fireplace Equipment
Residential	Garage Heaters
Residential	Gaslights
Residential	Gas Grills
Residential	New Construction
Residential	Conversion
Commercial	Food Service
Commercial	Grocery
Commercial	Lodging
Commercial	Retail
Commercial	Education
Commercial	Health Care
Commercial	Public Administration
Commercial	Real Estate
Industrial	Primary Asphalt
Industrial	Primary Metals
Industrial	Stone, Glass, & Clay
Industrial	Small Manufacturing - Finishing
Industrial	Small Manufacturing - Forging/Forming
Industrial	Small Manufacturing - Heat Treating
Industrial	Small Manufacturing - Other Fabricated Metals
Industrial	Chemicals
Industrial	Food Processing
Industrial	Paper Processing
Industrial	Plastics/Rubber
Industrial	Textiles/Apparel
Industrial	Wood Products
Products	Commercial Cooling
Products	Make Up Air
Products	Environmental - Cofiring
Products	Environmental - Utility Reburn
Products	Environmental - Thermal Oxidizers
Products	Stationary Engines
Products	Natural Gas Vehicles

III. Organization, Staffing, and Controls

A. Scope

This chapter covers the organization, staffing, and operational control systems related to gas management functions. More specifically, this chapter covers:

- Organizational structure
- Staffing
- Approval authorities
- Work process definition and control
- Documentation requirements
- Auditing.

B. Background

1. Organizational Structure and Staffing

On July 1, 1997, a corporate reorganization within CNG established the LDC Gas Supply Group (GSG) specifically for the purpose of making gas management functions for the four LDCs of CNG a more efficient and competitive operation. This reorganization reduced overhead and bureaucracy, and resulted in a "Service Level Plan" that operates like a contract and is, in effect, an agency agreement for certain services to be provided by GSG to each of the four LDCs. The following GSG Vision Statement describes the overall objective of the GSG:

Vision Statement

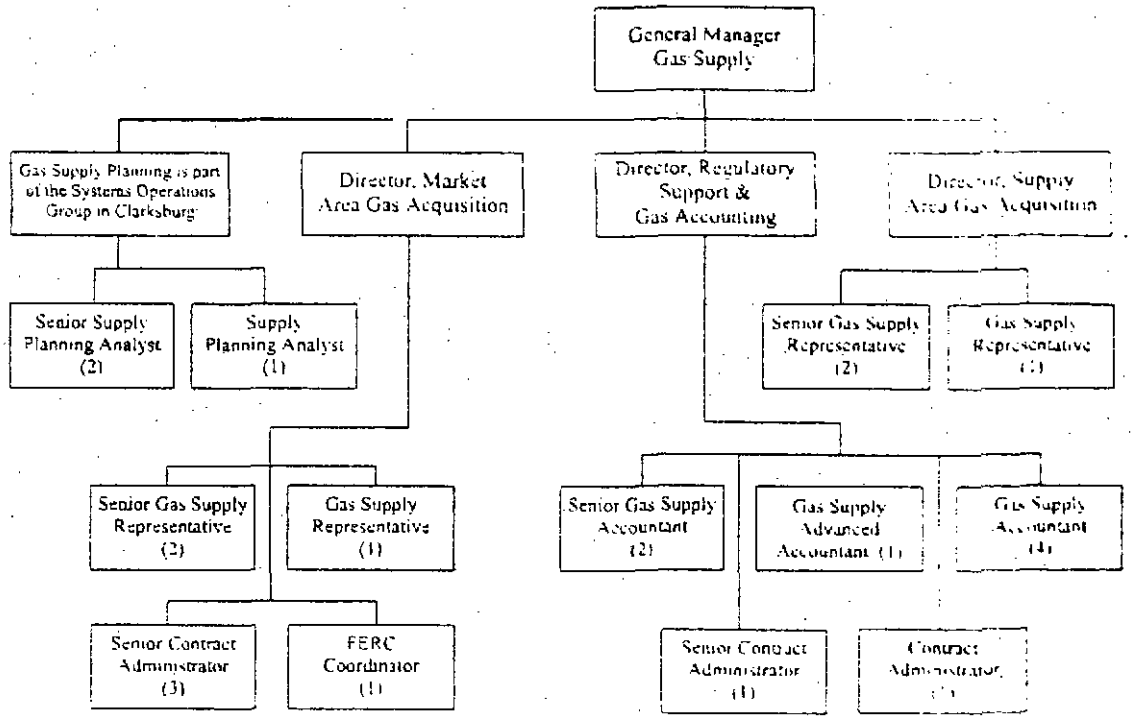
The LDC Gas Supply Group (GSG) will provide reliable, competitively priced gas supplies, capacity and related services to satisfy the physical gas needs of the CNG LDC companies (LDCs). The management approach and organizational structure of the GSG will emphasize customer service and efficiency.

Consistent with this Vision Statement, each of the four LDCs, The East Ohio Gas Company, The Peoples Natural Gas Company, Virginia Natural Gas, Inc., and Hope Gas, Inc., are customers of the GSG and are connected to the operations of the GSG by policies and procedures that have been specifically structured to facilitate efficiencies, cooperation, and communication.

The GSG is led by a General Manager, who, along with his organization of approximately 29 individuals, is located in the Pittsburgh Park Ridge Center. The Gas Supply Group is in the Commercial Operations organization, is part of the regulated CNG business operations, and the General Manager of the Gas Supply Group reports directly to the Sr. Vice President of Commercial Operations, as indicated on Chart III-3 below. The organization of the CNG LDC Gas Supply Group is illustrated in Chart III-1 below.

Chart III-1

CNG LDC Gas Supply Group



The following are the responsibilities of the GSG:

- Develop and execute a departmental business plan, with approved O&M and capital budgets that support CNG LDC's and System short-/long-term strategies.
- Participate in the development of comprehensive short- and long-term gas supply plans dealing with the appropriate level of gas supply assets to reliably meet customer needs, including pipeline contracts, gas commodity contracts, storage, production, and gathering assets;
- Oversee all gas accounting and contract administration functions including the timely processing and payment of supplier invoices for all interstate and local gas purchases for the CNG LDCs;
- Support CNG's gas procurement policies and practices before various state regulatory commissions; provide assistance to the Legal and Rates Departments concerning gas supply matters, represent the LDC at industry association gas supply meetings.

- Lead and coordinate CNG's FERC activities related to gas supply to ensure actions that enhance and protect customer and CNG's interests;

- Actively participate on corporate planning teams to develop organizational vision, goals, and long term strategies for CNG.

In addition to the changes made in July of 1997, there have been other organizational changes within CNG, as well as EOG, since the last audit period. In December of 1998, the CNG regulated business activities began to move away from autonomous business units, such as East Ohio Gas, and toward process oriented activities. These changes began to group activities such as marketing, engineering, and regulatory such that these functions are now conducted for all LDC's, rather than duplicated within each LDC as was the case in the previous more autonomous organization. Other philosophical changes related to "span of control," with the new direction being to increase the number of individuals reporting to managers.

The result of these organizational changes is that there is no longer a President of East Ohio Gas, and East Ohio Gas' activities are now handled through one of three organizations—Distribution, Pipeline, and Commercial—as illustrated in Chart III-2 below. The Senior Vice Presidents of each of these organizations handle only the regulated activities for CNG, as well as the four LDCs, and report directly to the Chairman of CNG. The unregulated activities within CNG, such as those of the marketing affiliate, East Ohio Energy, report separately to the Chief Financial Officer, who in turn reports directly to the Chairman of CNG. Thus, the only organizational connection between the regulated and unregulated businesses of CNG occurs at the level of the CNG Chairman.

Chart III-2

CNG Corporate Organization

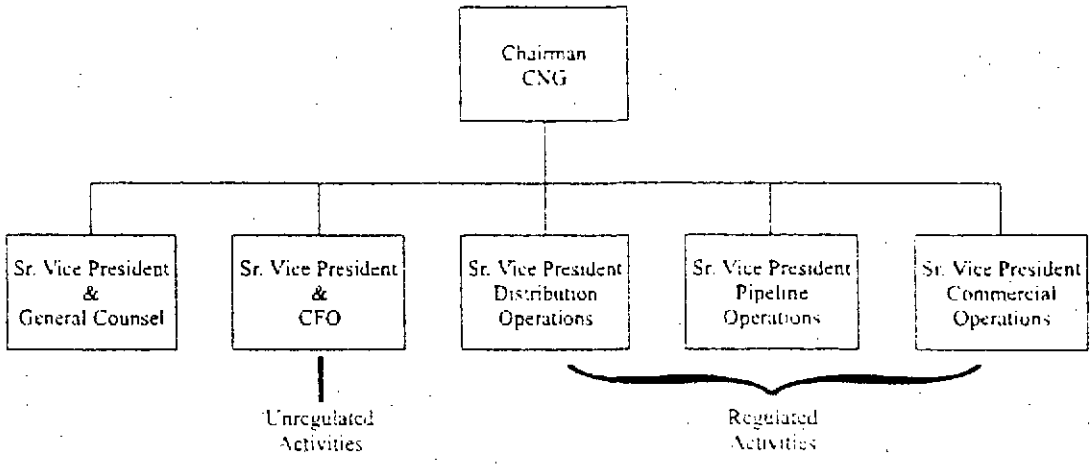
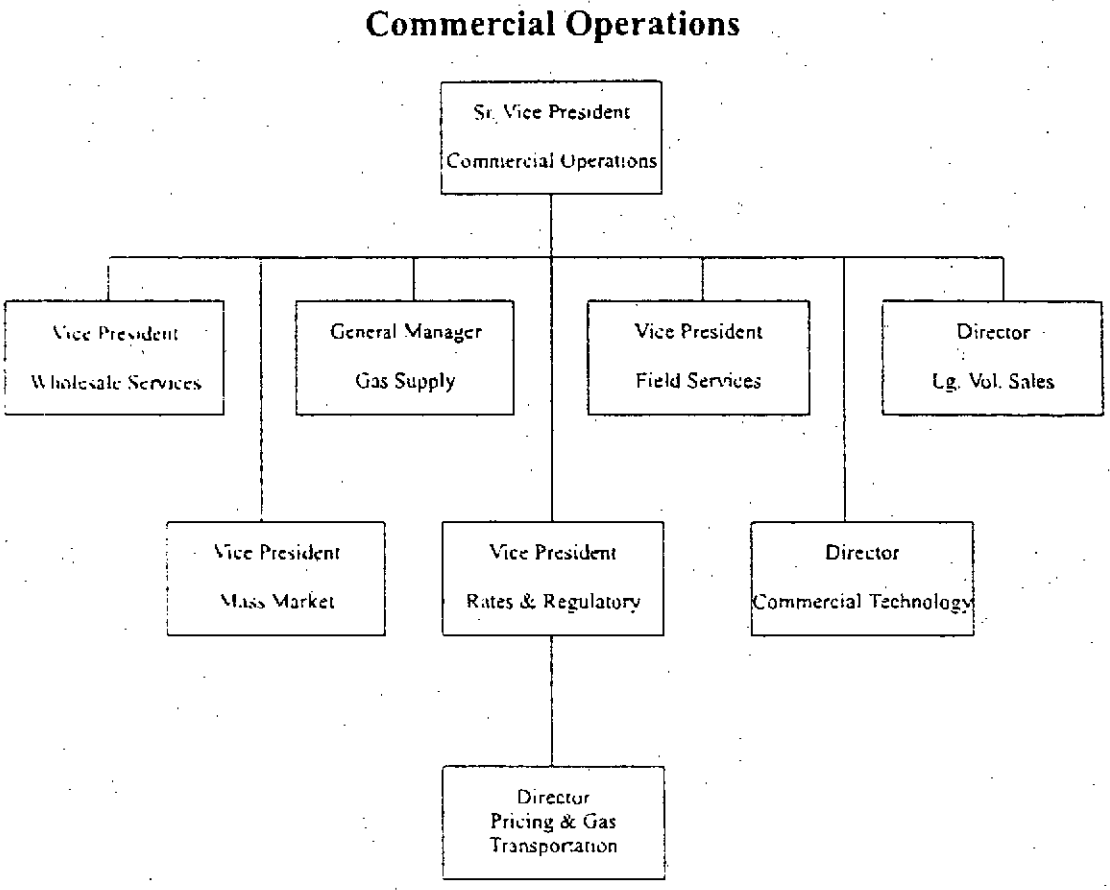


Chart III-3, Commercial Operations, illustrates how the CNG Gas Supply Group, under its General

Manager, and the EOG Pricing and Gas Transportation function integrate into the overall CNG corporate structure.

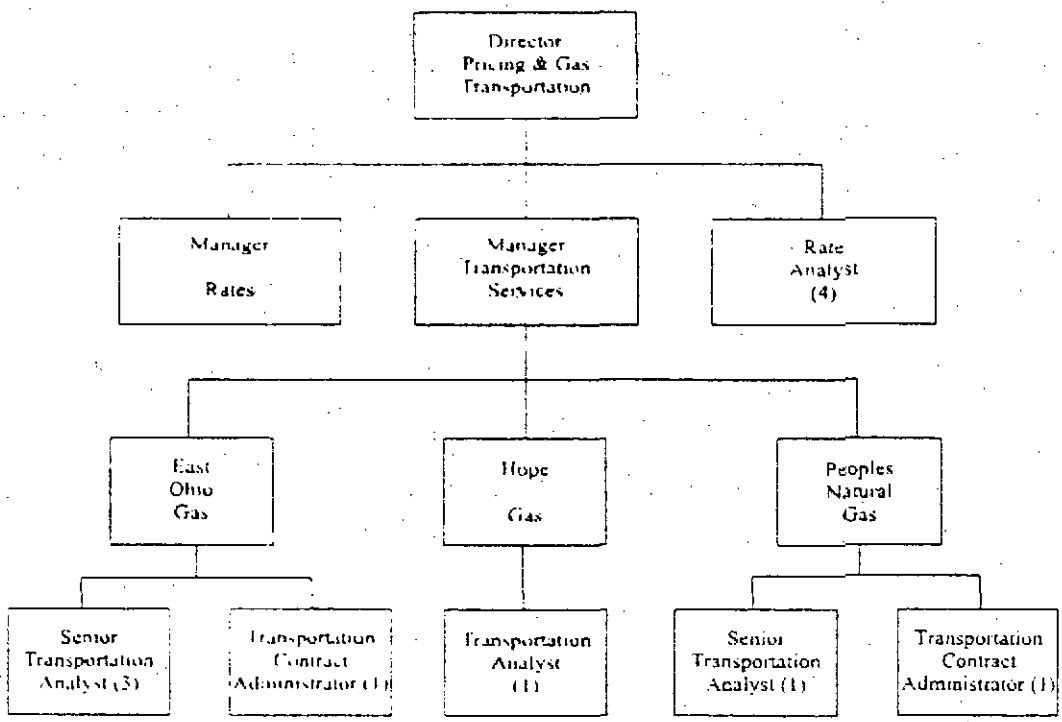
Chart III-3



The general responsibilities of the Director, Pricing and Gas Transportation are to oversee all regulated services development and pricing activities for all of the CNG LDCs. The organization chart for this function is illustrated in Chart III-4 below.

Chart III-4

Pricing and Gas Transportation Department



Responsibilities of this group include oversight of unbundling, gas transportation, and ancillary service offerings of the CNG LDCs. This individual leads the rate and regulatory function for regulated activities of EOG as conducted in the state of Ohio. This individual also supports the rate and regulatory activities in other jurisdictions by contributing resources and expertise as required. Examination of these responsibilities shows that in this position, as in others, there has been movement away from specific autonomous EOG functions toward more functional or process-oriented responsibilities covering activities not only for EOG, but for all CNG LDCs. The exception to this movement toward functional responsibilities is management of Virginia Natural Gas activities. In this case, because of the pending merger with Dominion Resources, Virginia Natural's activities have been reconsolidated into an autonomous grouping in order that Virginia Natural can be sold by Dominion as a completely separate entity. Specific responsibilities of the Director, Pricing and Gas Transportation include:

- Oversee the regulated service development activities for the CNG LDCs including:
  - Development of new tariff and other jurisdictional service offerings, including terms and pricing.
  - Class cost of service studies done in support of service pricing and base rate case requirements.
  - Unbundling of services and involvement in related proceedings addressing

operational, administrative, and code of conduct issues;
- Commercial operations regulatory liaison regarding gas supply and marketing/pricing issues;

- Oversee the rate and regulatory affairs for CNG's EOG LDC operations in Ohio, including the development of new regulations;

- Manage relationships with regulatory stakeholders including state commissioners, commission staff, consumer advocates, and other parties that influence the state's regulatory environment;

- Support and defend CNG's positions in state and federal proceedings regarding company-specific matters as well as generic proceedings;

- Provide and coordinate expert written and oral testimony on regulatory and related policy matters;

- Provide oversight of CNG's LDC transportation service areas, including administration of end-user transportation and pooling programs;

- Provide oversight of CNG's LDC unbundled service areas, including administration of storage, firm receipt point service and other ancillary service offerings.

Chart III-5 below, Pipeline Operations, illustrates how the Gas Supply Operations function integrates into the overall CNG corporate structure. The Gas Supply Operations group is generally responsible for coordination of gas operations, which includes the production, storage, transmission, and compressor operations of EOG and the other three LDCs. Specific responsibilities include:

- Ensures safe and efficient pipeline systems operations by monitoring the operations, transmission, production and certain high pressure distribution systems, by ensuring compliance with all regulations and codes;

- Oversees gas dispatching for the transmission system, storage system, production system, and high pressure system. This includes the ordering and controlling of the gas from its various sources;

- Recognizes, identifies, and influences the impact of gas supply decisions within EOG and CNG affiliates;

- Directs the compliance with state and federal regulatory codes and requirements affecting the delivery and interstate transportation of pipeline gas;

- Establishes performance expectations in concert with operating companies business and operating strategies;

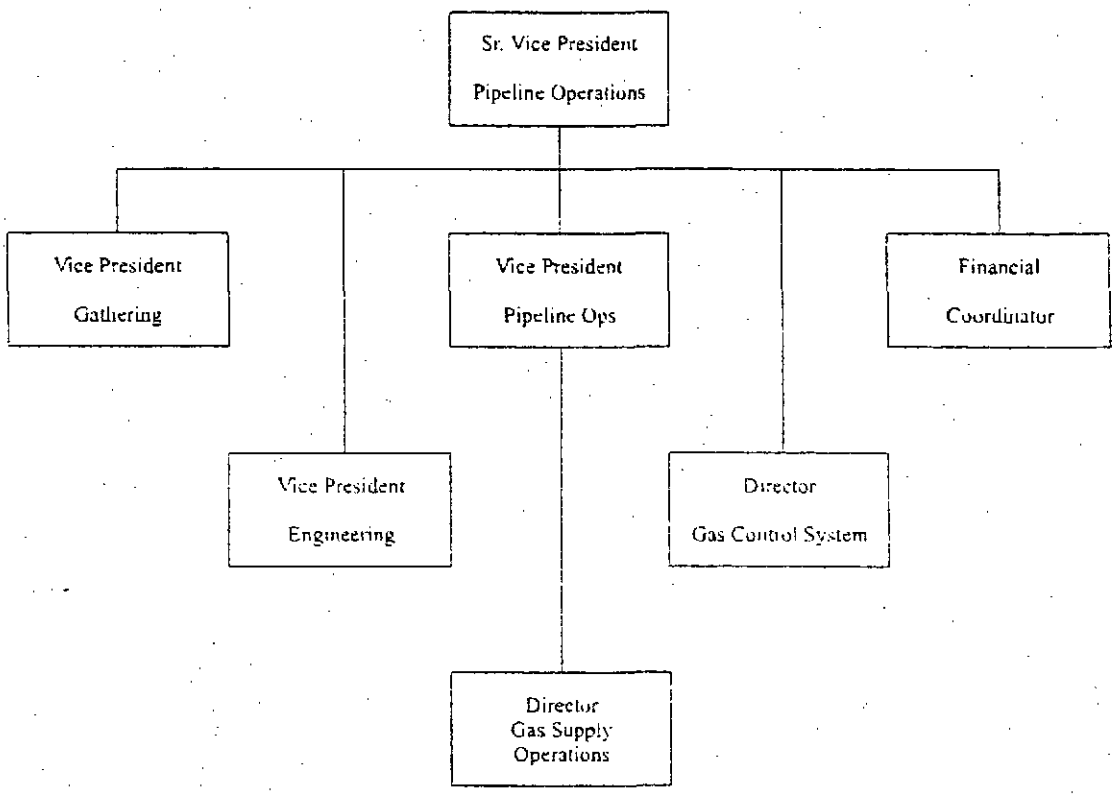
- Directs the approval of all wells tied into the system. Provides geological assistance

for the company production activities along with evaluating proposals on drilling programs;

- Implements strategies to increase performance of EOG storage assets;
- Oversees the monitoring of gas supply to provide reliable and interrupted service for the system.

Chart III-5

Pipeline Operations



East Ohio Gas and the CNG LDC Supply Group have established a number of specific communication tools to ensure effective and frequent communication between the two groups, and to enhance gas management for EOG. These procedures, committees, and groups are as follows:

Stakeholder Group

This group discusses broad supply-related issues that may affect any or all of CNG's LDCs. Topics discussed may include general supply and market issues, operation of the CNG LDC Supply Group,

and LDC-specific issues that may have a bearing on future activities of the CNG LDC Supply Group. The entire group meets on an as-needed basis, but is supplemented by frequent discussions between the CNG LDC Supply Group and the individual company representatives regarding topics that may impact the representative's LDC. The group is comprised of the following representatives of the CNG LDC Supply Group and CNG's LDCs:

CNG LDC Supply Group
- General Manager, Gas Supply
- Director, Supply Area Gas Acquisition
- Director, Market Area Gas Acquisition
- Director, Regulatory Supply and Gas Accounting

CNG LDCs
- Vice President, Rates and Regulatory
- Director, Pricing and Transportation, OH Representation
- Director, PGA Accounting, PA Representation
- Manager, Regulatory Reporting, WV Representation

Gas Supply Planning Committee

This group discusses current and future issues that may directly or indirectly impact EOG's gas supply situation. Topics discussed typically include prior- and current-month gas supply, storage position, gas market conditions, operational issues, end-user market conditions, transportation services issues, and regulatory issues. The group typically meets monthly throughout the winter season and on an as-needed basis throughout the remainder of the year. The group is comprised of the following representatives of the CNG LDC Supply Group and EOG (attendance by personnel of the CNG LDC Supply Group is rotated from month to month)

CNG LDC Supply Group
- General Manager, Gas Supply
- Director, Supply Area Gas Acquisition
- Director, Market Area Gas Acquisition

EOG
- Vice President, Rates and Regulatory
- Vice President, Finance
- Director, Pricing and Transportation, OH Representation
- Director, Large Volume Sales
- Director, Area Operations
- Manager, Transportation Services
- Senior Corporate Planner

Additional employees of both the CNG LDC Supply Group and EOG may attend if their input is needed for a particular topic to be discussed in more detail

Monthly Supply Planning Meeting

This group discusses gas supply activities for the upcoming month in order to assess options and develop overall recommendations for first-of-the-month purchases and storage operations. Topics discussed typically include anticipated requirements under various weather conditions, gas market conditions, planned storage operations, expected local production volumes, end-user deliveries, interstate purchases, and potential for capacity release. The group typically meets during the third week of each month in order to develop the upcoming month's supply plan prior to bid-week activities. The group is comprised of the following representatives of the CNG LDC Supply Group and EOG:

CNG LDC Supply Group
- General Manager, Gas Supply
- Director, Supply Area Gas Acquisition
- Senior Supply Planning Analyst (2)
- Senior Gas Supply Representative

EOG
- Director, Pricing and Transportation, OH Representation
- Manager, Transportation Services
- Director, Area Operations
- Chief Gas Dispatcher
- Storage Engineer

Additional employees of EOG may attend from time to time to gain exposure to the supply planning process or provide input as necessary.

Daily Gas Control Meeting

This group discusses detailed gas supply plans for the current day and the following four days with particular emphasis in the winter on base and peak storage deliverability. Topics discussed include the range of weather forecasts, prior day sendout, projected sendout, storage deliverability and dispatching sequence, existing interstate flowing supplies, and potential change in interstate requirements, including use of the Egan supply area storage. The group meets daily during the winter and shoulder month periods and less frequently during the summer period. The group is comprised of the following representatives of the CNG LDC Supply Group and EOG:

CNG LDC Supply Group
- Director, Supply Area Gas Acquisition
- Senior Supply Planning Analyst (2)
- Senior Gas Supply Representative
- General Manager, Gas Supply (*)

EOG
- Director, Area Operations

Chief Gas Dispatcher
Gas Dispatcher
Storage Engineer
Director, Pricing and Transportation, OH Representation (*)
Manager, Gas Transportation (*).

(*) Denotes occasional, rather than routine, attendance. During critical supply periods, those listed with an asterisk will participate along with others in senior management positions as necessary.

Winter Supply Planning Meeting

This extended group is convened typically once each year in October to discuss the long-range plan for the upcoming winter's gas supply operations. Topics discussed include: general supply related objectives throughout the winter season; key assumptions underlying both demand and supply projections; normal, design warmer-than-normal and design colder-than-normal weather scenarios of daily, monthly and seasonal demand; design day review; base and peak storage planning under differing weather scenarios; storage migration control, contract storage demand ratchet timing; expected end user deliveries, interstate firm transportation contract utilization; portfolio of local purchases and interstate term, swing and spot supplies; and potential capacity release scenarios. An additional topic discussed in the October 1999 meeting was Y2K contingency planning and preparedness. The group is comprised of the following representatives of the CNG LDC Supply Group and EOG:

CNG LDC Supply Group
General Manager, Gas Supply
Director, Supply Area Gas Acquisition
Director, Market Area Gas Acquisition
Senior Supply Planning Analyst (2)
Senior Gas Supply Representative

EOG
Vice President, Rates and Regulatory
Director, Pricing and Transportation, OH Representation
Manager, Transportation Services
Director, Area Operations
Chief Gas Dispatcher
Gas Dispatcher
Storage Engineer.

Other Communication

In addition to the preceding groups and meetings, there are several discussions that take place on an as-needed basis when key strategy or operational decisions must be considered. Examples include pipeline contract restructuring, contract elections, FERC interventions and proceedings, unbundling

program development, and various other issues that may arise between scheduled meetings.

Staff Performance Measurement

East Ohio Gas and the CNG LDC Gas Supply Group use a coordinated program for motivation and measurement of the performance of employees. The foundation of the system is a performance management system that incorporates agreements with employees on goals for the year at the beginning of the year, and then measurement of the employees performance against these goals at the end of the year. In addition, at the end of the evaluation period, employees are measured against a set of behaviors typical for this industry. The evaluated performance of management employees represents approximately 95 percent of the factors that determine compensation, with the remaining 5 percent of compensation resulting from factors related to performance of the corporation during the period. In addition to the formal annual evaluation system, the General Manager of the Gas Supply Group uses an informal quarterly evaluation system. This system follows the pattern of the annual system, but is conducted quarterly on a verbal basis in order to reinforce good behaviors, and avoid the surprises that are possible in a system that is used only annually.

The formal evaluation system is monitored by the Human Relations Department, and the written employee evaluations are forwarded to that department for monitoring of the system and for retention in employee records.

Compensation tied to corporate performance was started in 1998, and represents the beginning of a trend toward increased rewards for achieving the desired corporate performance. The future of such a program, however, is uncertain because of the pending merger between CNG and Dominion Resources and the inability to predict the eventual structure of employee measurement and compensation programs in a merged entity.

2. Approval Authorities, Work Process Definition and Control, and Documentation Requirements

A Stipulation contained in the Opinion and Order from the previous management/performance audit was that "East Ohio agrees it will immediately implement contract document control policies and procedures to ensure immediate location and access to key capacity and commodity supply contracts." As a result of this stipulation, EOG and the LDC Gas Supply Group developed and implemented a new "Approvals Policy." The stated objective of the policy was to "ensure that all employees of the LDC Gas Supply Group, a part of CNG, (i) understand the contract administration and approval process and (ii) avoid any transactional practices which are in conflict with the interests of the company." The new policy was an important step for EOG because it covered not only the issue of document control as raised by the stipulation, but also covered other important gas management policies related to bidding procedures, approval authorities, and work process definition and control, as illustrated by the following table of contents of the policy:

- Requirements Planning

- Procurement Procedure (for Natural Gas)
- Procurement Procedure (for Storage, Transportation and Related Services)
- Contract Administration (Outgoing Contracts)
- Contract Administration (Externally-Generated Contracts)
- Invoices
- Telephone Recordation
- Administration

This Approvals Policy is reviewed with all new employees, and is reviewed annually with all employees. Each employee has his own copy of the policy. Revisions to the policy are issued as needed, with the most recent being in August 1999. At the time of revisions, the policy is again reviewed with employees, and they are provided with updated versions of the policy.

An important part of the policy is the controls established on the procurement of natural gas and gas services. Central to this process are the Deal Sheets. These are preprinted, pre-numbered, triplicate forms used to record the terms and conditions for every procurement of natural gas or other related service. Every Deal Sheet is approved by a Director in the Gas Supply Group. Furthermore, the contents of the Deal Sheet must be entered into the Altra Gas Management System within 24 hours of the procurement. Procurements of less than five month duration are handled entirely within the Gas Supply Group. Once the term of the procurement extends beyond five months, the appropriate LDC and its Key Stakeholder is involved for approval authority

In conjunction with development and implementation of the new Approvals Policy, all gas procurement documentation and contract information was consolidated in Pittsburgh and the offices of the LDC Gas Supply Group. The result was resolution of those issues related to either the location or the control of important gas supply management documentation, and the conditions of the Stipulation were satisfied.

3. Auditing

The CNG internal auditing group conducted a comprehensive audit of the natural gas procurement and management functions of the LDC Gas Supply Group in the first quarter of 1999. The purpose of this audit was to examine the procedures of the newly formed Gas Supply Group and to determine that the newly assumed responsibilities for gas procurement for all of the CNG LDCs were being properly conducted and managed.

The result of this audit was a set of twelve recommendations intended to tighten the gas procurement and management practices of the Gas Supply Group. As of the end of the current audit period, the Gas Supply Group has either complied with the recommendations of the audit, or made satisfactory

progress toward compliance with the recommendations. The recommendations are significant in the added controls agreed to by the Gas Supply Group and the consequent improvement expected in management of gas supplies. These twelve recommendations were:

- All deal makers should be required to document all deals on a uniform, pre-number Deal Sheet.

- An accounts receivable (A/R) policy must be developed and implemented in order to address the collection and follow-up of past due accounts.

- In order to strengthen internal controls surrounding the confirmation process, the Contract Administrator should:
  a. attach a copy of the deal sheet and forward it along with the confirmation to the deal maker, to be returned by the end of the business day and
  b. forward the Confirmation Log weekly to the General Manager Gas Supply Activities for his review.

- Due to the frequency of discrepancies noted regarding capacity deals, additional training in Altra may be required, particularly in the capacity release area. In addition, the current "Estimate vs. Actual" report completed by the Gas Accounting Group should be compiled consistently each month and forwarded to the GM, Gas Supply for his review.

- The deal maker should be required to balance their Altra routing to the pipeline EBB's each month. We recommend that this be done on a daily basis to avoid a cumbersome month-end effort.

- The Gas Supply Accountants should consistently complete discrepancy reports for all differences between Altra and supplier invoices. These discrepancy reports should be sent to the GM, Gas Supply, each month as a tool for locating problem areas.

- All price discrepancies resolved in favor of the price listed on the supplier's invoice should be supported by a written explanation and approved by a Director and/or GM, Gas Supply prior to payment of the supplier invoice.

- Initiate a recording system in the Supply Area Acquisition Group for all deals consummated via telephone conversation.

- All third party confirmations must be sent directly to the Contract Administrator rather than deal makers.

- A list of approved counterparties should be developed and referenced whenever the Supply Acquisition Group brokers natural gas Credit limits should be established for each customer included on the approved list.

- The current Approvals Policy should be revised to reflect a more realistic approach

to dealing with customers who have not signed a base agreement within the required 90 days.

- Documentation should be kept on file noting reasons why a supply was chosen over the others included in a Request for Proposal.

Internal Auditing has indicated that they expect to conduct similar comprehensive audits of the gas management activities of the LDC Gas Supply Group on a regular, and probably annual, basis.

C. Conclusions

1. **EOG has satisfactorily complied with the requirements of the Stipulation from the previous management/performance audit requiring improvement in the contract document control policies and procedures to ensure immediate location and access to key capacity and commodity supply contracts.**

EOG, in conjunction with the LDC Gas Supply Group, developed and implemented a new and comprehensive "Approvals Policy" designed to address the issues raised in the Stipulation related to control and access to key contract documents. All original document files were consolidated in the Pittsburgh office of the Gas Supply Group, and the new control procedures were effectively implemented. An internal audit conducted in the spring of 1999 confirmed that the required procedures were in effect. Liberty's own investigations confirmed that the requirements of the Stipulation have been met. The new Approvals Policy went beyond the requirements of the Stipulation, and established a tight foundation of policies and procedures for the entire gas procurement and management process, including guidelines for bidding, documentation, approvals and telephone recording of transactions made by Gas Supply Representatives involved in procurement of natural gas or related services.

2. **The CNG Internal Auditing Group performs an important function in monitoring the overall range of activities of the gas procurement and management function and internal audits should be continued on a regular basis.** (*Recommendation No. 1*)

The internal audit of the LDC Gas Supply Group conducted by the CNG Internal Auditing Group in the Spring of 1999 was effective and demonstrated the value of detailed internal audits. This audit uncovered possible improvements in the gas procurement and management process, and set the high standard necessary for the careful monitoring and control of gas management and procurement operations. Especially important are the document control procedures and approval requirements highlighted in this audit.

3. **The overall CNG corporate organization provides a sound structure from which EOG is able to conduct its natural gas procurement and management functions.**

The reorganization within CNG which has moved gas procurement and management functions away

from autonomous LDC centered operations and toward more functional or process oriented operations has been an improvement. This reorganization was specifically for the purpose of making the gas management functions for the four LDCs of CNG a more efficient and competitive operation. The result was the formation of the CNG LDC Gas Supply Group. This reduced overhead and bureaucracy, and the group provides reliable, competitively priced gas supplies, capacity and related services to satisfy the physical gas needs of the CNG's LDCs. The management approach and organizational structure of the GSG emphasizes customer service and efficiency. Each of the four CNG LDCs are customers of the GSG and are connected to the operations of the GSG by policies and procedures which have been specifically structured to facilitate efficiencies, cooperation and communication.

4. **EOG, in concert with the CNG LDC Gas Supply Group, and in recognition of the newly formed organizational structure, has established effective communication tools and procedures to ensure adequate representation of the interests of each entity in the gas procurement and management process.**

Major organizational changes, and shifting of responsibilities for gas procurement and management, could have detrimental impacts on an organization. EOG and the CNG LDC Gas Supply Group have recognized the possible detrimental effects of such reorganization and are to be complemented on the comprehensive policies and procedures established to ensure effective planning and communication between the two organizations. Central to these new policies and procedures are the structured groups and planning committees and meetings which interact on a regular basis to maintain current information, exchange ideas, plan and ensure effective communication between the organizations, and involvement of the critical individuals in each organization.

D. Recommendations

1. **The CNG Internal Auditing Group should continue the process established in the initial audit of the LDC Gas Supply Group and audit the gas procurement and management practices on approximately an annual basis.** (*Conclusion No. 2*)

The CNG LDC Gas Supply Group has agreed to the twelve recommendations that resulted from the initial audit by the Internal Audit Group. These twelve recommendations are important in the detail required for effective control of gas procurement and management operations, and set a standard that must be continued. Therefore, it is important that the Internal Audit Group not only monitor the continued compliance with these standards, but continue to examine the operations of the GSG for other improvements in operations that might be possible. As the natural gas industry continues to evolve and become increasingly competitive, every opportunity should be taken by EOG (such as through these internal audits) to ensure that gas procurement and management functions are being conducted as efficiently and effectively as possible

IV. Gas Transportation

A. Scope

Transportation is primarily related to three areas that have a significant effect on the planning process at EOG. Large Volume (Industrial) Transportation, Small Volume Transportation (the CMAS program), and Agency Services. The primary issues associated with these services are discussed in this chapter of the report and include: (1) the rate impacts of customers migrating between sales and transportation service, (2) the pricing of transportation and ancillary services and its impact on sales service customers, and (3) Company responsibilities in the face of migration between sales and transportation services.

B. Background

During the twelve-month period from August 1997 through July 1998, EOG transported 122,271,730 Mcf of natural gas for end-use customers, which amounts to approximately 44 percent of EOG's total requirements over the same time period.[1] During the eleven month period from August 1998 through June 1999, EOG transported 120,500,919 Mcf of natural gas for end-use customers. The Company's policy is to provide transportation service on a non-discriminatory open access basis to all customers. Consistent with this policy, EOG offers six tariffed transportation services: Daily Transportation Service (DTS), for those customers who transport on the EOG system and have installed real-time electronic gas measurement ("EGM") capability; General Transportation Service (GTS), for those transportation customers on monthly metering; Experimental Small General Transportation Service (ESGTS), for customers who consume less than 300 Mcf per year[2]; Transportation Service for Schools (TSS), for the non-residential premises of primary and secondary schools; Full Requirements General Transportation Service (FRGTS), the service that supports the Company's Core Market Aggregation Service (CMAS) program for larger customers; and Full Requirements Small General Transportation Service (FRSGTS), the service that supports the Company's CMAS program for smaller customers.[3] Exhibit IV-1 shows the customers served and volumes delivered under each of these rate schedules.

The sections that follow discuss the Company's transportation service offerings. Traditional transportation services include DTS, GTS, TSS, and ESGTS, and are discussed in a section immediately following. Next, the discussion turns to the transportation services offered in support of the Company's energy choice program (FRGTS, FRSGTS). A third section discusses Agency programs. A fourth section discusses the Company's response to bypass, which manifests itself as discounted transportation service. A fifth section relates to all of EOG's transportation service offerings, and discusses how the Company has dealt with "prodigal son" issues. The last section discusses the Company's response to transportation-related recommendations from the prior audit.

1. Traditional Transportation Services

Traditional transportation services include DTS, GTS, TSS, and ESGTS. Over the audit period (and over the last five years), the percentage of transportation volumes that were provided under all of these rate schedules has remained relatively constant, as shown on Exhibit IV-2.[4] A number of terms and conditions apply equally to all of these (non-energy choice) transportation service offerings.[5]

- The Character of Service is firm, provided the Customer's Daily Available Volume is sufficient to meet the Customer's Delivery Volume. Service in excess of that level is interruptible.

- Positive month-end imbalance volumes in excess of the Customer's Volume Banking Service Monthly Tolerance Level are priced at the reference price plus variable transportation charges.

- Negative month-end imbalance volumes are cashed out at 120 percent of the reference price plus firm transportation charges.

- Nominated local Production Volumes are reconciled to actual measured Production Volumes in the first month following the determination of the actual.

- Operational Flow Orders (for monthly balanced customers) and Operational Matching Orders (for daily balanced customers) may be issued which direct customers to match Daily-Available Volumes to daily Delivery Volumes.

- OFO/OMO noncompliance charges are based on the highest incremental cost of gas plus monthly demand charges subject to a multiplier based on number of days of noncompliance during the calendar month.

- Human Needs Customers are required to have adequate backup supply service in the form of alternate fuel capability, reliable (*e.g.*, primary firm) natural gas commodity service from another supplier, standby service or contract supply service.

- Any customer initiating transportation service after November 1994 continues to be responsible for the Percentage of Income Payment Plan Rider and any transition cost and refund rights and responsibilities.

- No upstream pipeline capacity is directly assigned. Customers are responsible for payment of the Transportation Migration Rider, part A, of $0.099 per Mcf in recognition of the upstream pipeline no-notice service charges incurred to provide daily operational balancing. Revenues from the rider, which is effective through March 31, 2001, are credited to GCR customers

In addition, there are terms and conditions applicable to the specific transportation service subscribed to. The terms and conditions applicable to Daily Transportation Service (DTS) are:

- All Delivery Points must be equipped with real-time electronic gas measurement capability.

- The Daily Balancing Tolerance is within plus or minus 5 percent of Delivery Volume. Daily imbalances in excess of the 5 percent tolerance are subject to an imbalance fee of $0.20 per Mcf per Day.

- Volume Banking Service, which provides the ability to carry a positive bank of 2, 4, 6, 8, or 10 percent depending on the specified Monthly Tolerance Level, is optional.

The terms and conditions Applicable to General Transportation Service (GTS) are:

- Delivery Points are not required to be equipped with real-time electronic gas measurement capability, unless the customer does not receive all of its gas from East Ohio.

- Customers are required to subscribe to Volume Banking Service with a minimum Monthly Tolerance Level of 2 percent of monthly consumption volumes.

- Any Customer that does not receive all of its natural gas requirements through EOG is subject to a monthly surcharge equal to $3.00 per Mcf times the Customer's Maximum Daily Transportation Quantity.

The terms and conditions Applicable to Transportation Service for Schools (TSS) are:

- Service is available to nonresidential premises of primary and secondary schools throughout the Company's service area

- All other non-rate terms and conditions are the same as GTS.

2. Energy Choice Transportation Service Offerings

On July 2, 1997, the Public Utilities Commission of Ohio ("PUCO") approved an application by the Company to implement an 18-month pilot of its Energy Choice program, which provides opportunities to approximately 170,000 residential, commercial, and industrial customers in ten counties to select their own provider of natural gas. In its July 2 Opinion and Order, the PUCO approved the introduction of two new Full Requirements transportation tariffs designed to eliminate tariff barriers to small customer transportation. The new tariffs have a monthly service charge that is identical to the comparable sales tariff rate and a volumetric rate that is $0.179 per Mcf less than the comparable sales tariff rate to eliminate that portion of the rate associated with the commodity-related excise tax. The Company continues to use cycle billing for participating customers, so there is no electronic metering requirement for customers receiving Full Requirements transportation service. The PUCO also approved a Transportation Migration Rider, part B, which recovers from migrating customers (1) unrecovered gas cost – plus or minus – over the first 12 months of a customer's Full Requirements service and (2) the cost of operational balancing capacity. The same Rider also includes recovery of certain program costs at $0.0211 per Mcf from all sales and transportation customers in the areas in which the Energy Choice program is offered. EOG has the ability to flex that rate downward to meet competitive threats. Volumes served under these programs have increased to approximately 5 percent of total transportation volumes, as shown in Exhibit IV-2.

A key component of the Energy Choice program is the Core Market Aggregation Service ("CMAS"), which places supply-related responsibilities in the hands of a third-party supplier. The CMAS terms and conditions address operational issues such as capacity assignment, supply nominations, on-system storage operation, and imbalance trading and reconciliation. Under CMAS operation, EOG estimates pool consumption at least two days in advance and tells the supplier how much gas should be nominated to meet those estimated requirements. EOG does not mandate the sourcing of the gas in any way outside OFO periods. As long as the supplier brings on the required supply volume, the supplier is deemed to be in balance, regardless of what actual consumption may have been on the day in question. Imbalance trading is available for suppliers to eliminate daily imbalances resulting from a failure to provide the required supply volume. Any remaining daily imbalances are cashed out at prices which include multipliers that increase the economic cost of the imbalance as its magnitude increases. Fees charged to the supplier include a one-time $50.00 credit check fee, a $5.00 customer conversion charge payable by the new supplier whenever a customer switches from one supplier to another, and a $0.035 per Mcf volumetric fee on all volumes delivered to end users out of the CMAS pool.

The Core Market Aggregation Service requires suppliers to take an assignment of capacity, at cost of service, formerly used by EOG to serve the customer for sales service. The capacity assignment provisions include the following:

- On-system storage, which comprises 47.1 percent of the peak day capacity to be assigned, is assigned at no cost to the supplier because the associated costs are recovered in the volumetric rates charged to end users under the Full Requirements transportation tariff. That storage can be redesignated to be used in other pools operated by the supplier on EOG's system or released back to EOG for remarketing as firm storage service with the proceeds from the resale being remitted back to the supplier.

- Upstream GSS contract storage on CNG Transmission, which comprises 19.1 percent of the assignment, is released at cost to the supplier. The supplier can then choose to re-release the capacity, use it to support other pools on EOG's system, or redirect withdrawals to other non-EOG city gates under terms agreed to by CNG Transmission.

- Upstream FT, which comprises the remaining 33.8 percent of the assignment, is assigned using a pro rata mix based on load-factor adjusted weightings. If the pro rata assignment results in a particular segment of pipeline capacity that is less than 100 Dth per day, the supplier can replace that segment with another of its own choosing. Finally, the supplier can replace a portion of its FT assignment in any given month with an assignment of local Ohio production at EOG's WACOG for the last actual month.

- The storage assignments are updated at the end of each withdrawal season, while the FT assignment moves with the customer. The assignments are not to be recallable except in situations where the supplier has not complied with an operational flow order issued by EOG.[7]

This practice of capacity assignment at cost of service (as well as the fees discussed above) reflect the Company's desire to minimize the subsidies flowing from sales to transportation service

customers who enroll in the Company's Energy Choice program. By minimizing subsidies and fully mitigating stranded costs through mandatory assignment, the rate impacts of customer choice are in turn minimized.

3. Agency Programs Offered

The Company also offers agency service, wherein the Company procures natural gas for specific customers, and transports that natural gas for those customers. As of June 1999, EOG provides this service to only 1 customer through 14 accounts.

The volumes provided on an agency basis have fallen from approximately 16 percent of total transportation volumes in 1995 to less than 0.5 percent of total transportation volumes for the period January through June of 1999.[8] Company management also indicates that it is actively pursuing a policy of converting its last remaining agency customer to another transportation service. Thus, this service is clearly becoming less important. For this reason, agency programs are not discussed in detail in this report.

4. Company Response to Bypass

In addition to the tariffed transportation services described above, EOG does offer flexible transportation pricing to the extent that it is needed to avoid bypass and it makes economic sense to the Company. Exhibit IV-3 shows the discounted volumes and revenues for the period August 1997 to July 1999. As can be seen from Exhibits IV-2 and IV-3, there are increasing volumes that receive some pricing concession, reflecting the increasing bypass threat that the Company indicates it is under.

When a bypass threat is identified, the Company performs a study in order to determine how significant the bypass threat really is. If bypass is regarded as a legitimate threat, the Company then identifies all economic and technical options in addition to discounting that could be used to counter the threat. If discounting is determined to be the only legitimate option, the discounting request is reviewed by the Product and Pricing Committee, composed of members of the Rates and Marketing Departments.[9] This minimizes the rate impact of the bypass threat.

5. "Prodigal Son" Issues

Prodigal son issues relate to the return to sales service by transportation customers. The Company has indicated that there is very little migration, and what changes there have been have had little or no impact on the Company's gas supply planning or rate levels for sales and transportation service.[10] This is confirmed by Exhibit IV-2.

In addition, all of the Company's transportation tariffs require a one-year term. Therefore, to the extent that a significant return to sales service is observed, the Company has a mechanism for controlling it and charging for the additional costs such customers impose on the system.

While prodigal son issues are not currently a problem for the Company, the problem may become more severe with the increase in the number of CMAS customers. Because of this, supplier of last resort issues and whether to remain in the merchant business remain key issues.

6. Miscellaneous Issues

There are two additional issues related to the EOG's transportation service offerings: EOG's progress on implementing last year's audit recommendations, and EOG's progress on "developing a means to ensure that it is appropriately determining and forecasting customer migration from sales service to transportation service"as agreed to in the stipulation agreement. These are discussed in this section.

With respect to last year's audit, two recommendations related to transportation service were made. First, it was recommended that EOG maintain information concerning daily and monthly deliveries to its system by transportation customers by source. EOG has fully complied with this recommendation by implementing a new transportation and pool management system. Second, it was recommended that EOG begin maintaining data that would permit a comparison of initial and retroactive withdrawal nominations from the Company's Enhanced Seasonal Interruptible Storage Service (ISS), which can be used by large, high load factor customers to meet balancing needs. EOG did not implement this recommendation, because it does not believe such information is needed or useful. Specifically, EOG believes that retention of these data are unnecessary for three primary reasons. First, the allowance for retroactive nomination provides a similar function as no-notice service. Other entities providing such service do not require initial or preliminary no-notice service nominations. Second, the timing of the information received dictates that it cannot be used for planning purposes. And finally, there is a cost to maintaining these data.

With respect to EOG's development of a means to determine and forecast customer migration, EOG has developed such a method in conjunction with its recontracting efforts. Of course, since the Company is forecasting a situation that has not previously occurred, it is largely based on a set of assumptions that may or may not prove to be valid. In any case, the Company estimates that, at least initially, 30-40 percent of its current sales customers will opt for Customer Choice.

C. Conclusions

1. The mix of transportation programs currently offered by EOG is appropriate.

EOG segments its transportation market by function (e.g, schools), metering requirements (e.g., real-time metering), and size of customer, thus enabling a wide variety of customer types to avail themselves of transportation service. In addition, the Company provides services, such as balancing, that are needed by these customers to utilize those transportation services. Finally, the Company adequately supports its customer choice offerings with the CMAS transportation service offerings.

2. EOG is isolating and assigning the costs associated with the provision of transportation service to transportation customers appropriately. *(Recommendation 1)*

The primary basis for the pricing of transportation services has been cost of service. This appears to be appropriate because it ensures that sales service customers do not subsidize transportation service customers and vice versa.

The transition charges assigned to transportation customers appear to be appropriate, as does the mandatory assignment of capacity. This should continue to be so as long as the Company retains supplier of last report responsibility and as long as the Company must offer merchant service

3. EOG has all of the necessary transportation services in place to support an expanded customer choice program.

The two transportation tariffs developed to support customer choice, FRGTS and FRSGTS include provisions for operational balancing, volume banking, and penalties for non-delivery to maintain system integrity in the face of increased transportation volumes and capacity assignment to minimize the potential that remaining sales service customers will have responsibility for stranded costs. These mechanisms can accommodate greater volumes to support the Company's stated intention to offer Customer Choice to all customers within the next year.

4. EOG is taking appropriate steps with respect to bypass issues.

While significant volumes are priced at flexible rates, this appears to be done only as a last resort EOG works with customers receiving rate discounts, and only provides them when they are in the best interests of remaining customers. The Company has chosen to lose customers to bypass when it is not in its best interest to provide such discounts.

5. To date, there have been few transportation customers who have returned to sales service. *(Recommendation 2)*

A review of the transportation volumes through time indicates that they have been relatively stable and, as a result, the Company has not had a significant problem with transportation customers returning to sales service. In addition, the Company has mechanisms in place to minimize this problem to the extent that it becomes significant.

D. Recommendations

1. **Mandatory capacity assignment should remain in place in order to minimize sales service customer stranded cost exposure until the Company has established a formal policy with respect to the supplier of last resort and merchant responsibility issues.** (*Conclusion 2*)

The Company has continued to insist on mandatory capacity assignment in its CMAS program, over the opposition of a number of parties. The Company has done so in order to shield sales customers from stranded cost exposure, given that it is still in the merchant business and still has legal responsibility for being the supplier of last resort. While Liberty believes that this practice has been appropriate, as stated in Chapter VII, Liberty also believes that this is a short-term solution to the problem of providing reliable service consistent with least cost principles. This too argues forcefully for the resolution of the two primary gas supply issues facing the Company: who has responsibility as supplier of last resort, (and what does that responsibility entail) and will the Company retain merchant responsibility.

2. **EOG should continue to monitor the performance of small volume transportation service customers as they return to sales service.** (*Conclusion 5*)

Liberty acknowledges that, up until this point, transportation volumes have been relatively stable through time and the Company has not had a significant problem with transportation customers returning to sales service. However, with the increase in small volume transportation service, it is not clear that this situation will continue. Accordingly, the Company should continue to monitor the performance of its small volume transportation service programs. If it appears that migration is becoming a more significant problem, the Company should be prepared to impose charges on returning customers to avoid burdening the remaining sales service customers.

END NOTES

1. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-5.

2. The ESGTS tariff was a forerunner of the FRGTS and FRSGTS tariffs, both of which now support the Company's Customer Choice programs. The Company currently has no customers on the ESGTS tariff.

3. Response to the Liberty Consulting Group Data Requests, Set No. 1, LCG-20.

4. The exhibit indicates that the percentage of customers served under these rate schedules has dropped. However, this is a function of the large numbers of customers (and relatively small volumes) that are served under one of the customer choice rate schedules, and not because there has been a significant decline in the traditional transportation service customers.

5. The Terms and Conditions summaries in this section are taken from the response to the Liberty Consulting Group Data Requests, Set No. 1, LCG-4.

6. The Company plans to offer this program to all of its customers, starting in the fall of 2000.

7. Response to the Liberty Consulting Group Data Requests, Set No. 1, LCG-4.

8. See Exhibit IV-2.

9. Company Interviews, October 5, 1999.

10. Company Interviews, October 5, 1999.

EXHIBIT IV - 1
EAST OHIO GAS COMPANY
Volumes and Numbers of Customers by Transportation Rate Schedule
For the Period August 1997 to July 1999

	GTS		TSS		DTS		FRSGTS		FRGTS		Discounted		Agency		Total	
Month	Volumes	Customers	Volumes	Customers	Volumes	Customers	Volumes	Customers	Volumes	Customers	Volumes	Customers	Volumes	Customers	Volumes	Customers
Aug-97	1,965,302.6	2,203.0	4,083.7	300.0	661,618.3	19.0	-	-	-	-	3,675,153.8	190.0	700,402.3	24.0	7,006,560.7	2,736.0
Sep-97	2,093,211.9	2,596.0	7,977.1	302.0	674,978.2	20.0	-	-	-	-	4,459,416.5	204.0	156,053.3	18.0	7,391,637.0	3,140.0
Oct-97	2,639,020.9	2,777.0	29,103.4	309.0	819,205.6	22.0	-	-	-	-	4,905,105.0	207.0	210,238.6	18.0	8,602,673.5	3,333.0
Nov-97	3,679,122.9	3,069.0	103,296.3	309.0	681,619.7	19.0	-	-	-	-	5,180,242.3	214.0	194,677.4	18.0	9,838,958.6	3,629.0
Dec-97	4,661,298.8	3,030.0	163,785.9	319.0	995,615.6	22.0	4,484.1	20.0	5,699.0	8.0	5,330,630.6	187.0	218,115.8	18.0	11,379,629.8	3,604.0
Jan-98	4,768,538.1	3,101.0	175,899.5	323.0	1,023,315.1	21.0	490,831.8	19,884.0	11,837.8	27.0	5,670,822.5	205.0	207,918.1	20.0	12,349,162.9	23,581.0
Feb-98	4,672,122.2	3,258.0	165,595.4	323.0	981,851.6	19.0	484,710.5	21,129.0	14,588.8	31.0	5,225,988.5	176.0	181,803.4	21.0	11,646,660.4	24,957.0
Mar-98	4,526,133.6	3,197.0	147,410.8	326.0	970,010.8	21.0	682,382.8	33,668.0	21,391.5	39.0	5,769,225.8	198.0	146,395.0	19.0	12,262,950.3	37,468.0
Apr-98	3,459,261.1	3,267.0	82,827.3	328.0	829,118.4	21.0	501,746.4	33,662.0	18,522.5	51.0	5,310,142.3	206.0	77,266.5	19.0	10,278,884.5	37,554.0
May-98	2,561,380.8	3,348.0	32,399.8	328.0	740,135.0	21.0	243,425.4	27,015.0	11,284.9	47.0	4,728,023.3	212.0	86,440.6	18.0	8,403,089.8	30,989.0
Jun-98	2,247,834.9	3,198.0	7,105.3	329.0	729,881.7	21.0	100,325.3	29,156.0	4,258.6	51.0	4,823,778.4	212.0	43,264.9	17.0	7,956,449.1	32,984.0
Jul-98	1,949,607.1	3,373.0	3,772.8	329.0	743,864.3	28.0	105,542.8	28,719.0	2,195.2	62.0	4,669,121.2	196.0	32,218.0	15.0	7,506,321.4	32,722.0
Aug-98	2,053,283.3	3,407.0	4,476.7	337.0	758,147.7	26.0	111,708.9	28,916.0	5,122.0	43.0	4,907,317.5	207.0	26,278.4	13.0	7,866,334.5	32,944.0
Sep-98	2,188,420.9	3,704.0	6,692.5	340.0	736,908.8	26.0	116,002.1	29,386.0	5,674.7	41.0	4,810,329.4	207.0	25,283.7	14.0	7,891,365.1	33,718.0
Oct-98	2,564,541.6	3,525.0	23,429.8	343.0	858,302.4	26.0	136,298.8	27,979.0	6,319.9	43.0	4,674,675.6	197.0	27,085.6	15.0	8,290,744.7	32,128.0
Nov-98	3,631,720.6	3,556.0	91,364.4	343.0	812,572.8	24.0	342,782.1	35,282.0	13,968.6	65.0	4,686,843.8	216.0	41,382.9	15.0	9,640,355.4	39,501.0
Dec-98	4,187,598.5	3,656.0	1,261,161.5	357.0	979,755.8	24.0	464,828.1	32,909.0	18,893.9	55.0	5,132,276.9	205.0	41,775.9	14.0	10,953,290.6	37,220.0
Jan-99	5,944,822.7	3,617.0	240,274.4	357.0	1,164,434.3	25.0	864,883.8	31,602.0	11,149.3	15.0	6,343,867.5	223.0	53,651.2	14.0	14,628,083.2	35,853.0
Feb-99	5,120,195.9	3,756.0	197,590.7	354.0	981,701.1	25.0	696,602.8	31,572.0	25,287.0	66.0	5,580,221.6	216.0	41,437.3	14.0	12,645,036.6	36,043.0
Mar-99	5,308,294.6	3,799.0	190,607.2	354.0	1,079,946.7	25.0	699,590.8	31,299.0	26,469.0	58.0	6,361,913.7	220.0	45,090.7	14.0	13,712,512.9	35,769.0
Apr-99	3,782,677.2	3,822.0	107,455.9	354.0	845,860.5	25.0	457,401.2	32,226.0	18,411.3	58.0	5,190,074.5	229.0	31,308.8	14.0	10,413,189.4	36,728.0
May-99	2,605,413.8	3,787.0	47,764.2	354.0	805,788.1	23.0	226,511.0	32,261.0	11,467.0	60.0	5,038,204.3	225.0	22,526.0	14.0	8,757,693.0	36,723.0
Jun-99	2,226,581.6	3,813.0	13,381.2	354.0	756,208.8	20.0	161,279.0	32,418.0	5,456.4	66.0	4,985,481.5	220.0	21,485.3	14.0	8,171,874.2	36,905.0
1995	30,611,166.7	1,195.0	280,485.4	180.0	10,683,196.4	30.0	-	-	-	-	38,961,648.5	135.0	15,868,534.3	35.0	96,425,024.8	1,575.0
1996	34,647,046.5	1,697.0	876,650.7	277.0	11,324,554.5	32.0	-	-	-	-	45,224,447.3	169.0	10,701,595.0	16.0	102,774,288.0	2,191.0
1997	36,464,831.6	3,030.0	1,018,628.2	319.0	12,930,498.1	22.0	4,484.1	20.0	5,699.0	8.0	48,399,761.8	187.0	6,419,365.0	18.0	107,243,268.0	3,604.0
1998	36,810,441.9	3,656.0	868,855.8	357.0	10,106,004.4	24.0	3,780,588.0	32,909.0	134,058.4	55.0	60,408,545.2	205.0	937,113.0	14.0	115,045,608.7	37,220.0
1999	24,974,981.3	3,813.0	797,073.6	354.0	5,635,939.5	20.0	3,106,268.6	32,418.0	98,260.0	66.0	33,499,763.3	220.0	216,099.3	14.0	68,328,389.3	36,905.0

Note: The above table does not include West Ohio Gas Volumes
Source: Response to the Liberty Consulting Group Data Requests, Set No. 1, LCG-5

EXHIBIT IV - 2
EAST OHIO GAS COMPANY
Percentage of Volumes and Numbers of Customers by Transportation Rate Schedule
For the Period August 1997 to July 1999

	Traditional Transportation Service		Customer Choice		Discounted		Agency		Total	
Month	Volumes	Customers	Volumes	Customers	Volumes	Customers	Volumes	Customers	Volumes	Customers
Aug-97	38%	92%	0%	0%	52%	7%	10%	1%	100%	100%
Sep-97	38%	93%	0%	0%	60%	6%	2%	1%	100%	100%
Oct-97	41%	93%	0%	0%	57%	6%	2%	1%	100%	100%
Nov-97	45%	94%	0%	0%	53%	6%	2%	0%	100%	100%
Dec-97	51%	94%	0%	1%	47%	5%	2%	0%	100%	100%
Jan-98	48%	15%	4%	84%	46%	1%	2%	0%	100%	100%
Feb-98	49%	14%	4%	85%	45%	1%	2%	0%	100%	100%
Mar-98	46%	9%	6%	90%	47%	1%	1%	0%	100%	100%
Apr-98	43%	10%	5%	90%	52%	1%	1%	0%	100%	100%
May-98	40%	12%	3%	87%	56%	1%	1%	0%	100%	100%
Jun-98	38%	11%	1%	89%	61%	1%	1%	0%	100%	100%
Jul-98	36%	11%	1%	88%	62%	1%	0%	0%	100%	100%
Aug-98	36%	11%	1%	88%	62%	1%	0%	0%	100%	100%
Sep-98	37%	12%	2%	87%	61%	1%	0%	0%	100%	100%
Oct-98	42%	12%	2%	87%	56%	1%	0%	0%	100%	100%
Nov-98	47%	10%	4%	89%	49%	1%	0%	0%	100%	100%
Dec-98	48%	11%	4%	89%	47%	1%	0%	0%	100%	100%
Jan-99	50%	11%	6%	88%	43%	1%	0%	0%	100%	100%
Feb-99	50%	12%	6%	88%	44%	1%	0%	0%	100%	100%
Mar-99	48%	12%	5%	88%	46%	1%	0%	0%	100%	100%
Apr-99	45%	11%	5%	88%	50%	1%	0%	0%	100%	100%
May-99	39%	11%	3%	88%	58%	1%	0%	0%	100%	100%
Jun-99	37%	11%	2%	88%	61%	1%	0%	0%	100%	100%
1995	43%	89%	0%	0%	40%	9%	16%	2%	100%	100%
1996	46%	92%	0%	0%	44%	8%	10%	1%	100%	100%
1997	49%	94%	0%	1%	45%	5%	6%	0%	100%	100%
1998	43%	11%	3%	89%	53%	1%	1%	0%	100%	100%
1999	46%	11%	5%	88%	49%	1%	0%	0%	100%	100%

Source Response to the Liberty Consulting Group Data Requests, Set No. 1, LCG-5

EXHIBIT IV - 3
EAST OHIO GAS COMPANY
Discounted Transportation Volumes and Revenue
For the Period August 1997 to July 1999

	Discounted		Agency		Total	
Month	Volumes	Revenue	Volumes	Revenue	Volumes	Revenue
Aug-97	3,675,153.8	$ 1,366,229.51	700,402.3	$ 85,120.71	4,375,556.1	1,451,350.2
Sep-97	4,459,416.5	$ 1,519,165.46	156,053.3	$ 65,308.73	4,615,469.8	1,584,474.2
Oct-97	4,905,105.0	$ 1,680,738.00	210,238.6	$ 132,099.73	5,115,343.6	1,812,837.7
Nov-97	5,180,242.3	$ 1,862,488.63	194,677.4	$ 152,936.75	5,374,919.7	2,015,425.4
Dec-97	5,330,630.6	$ 2,059,153.59	218,115.8	$ 20,381.69	5,548,746.4	2,079,535.3
Jan-98	5,670,822.5	$ 1,991,566.06	207,918.1	$ 44,367.74	5,878,740.6	2,035,933.8
Feb-98	5,225,988.5	$ 1,853,230.50	181,803.4	$ 70,706.67	5,407,791.9	1,923,937.2
Mar-98	5,769,225.8	$ 1,993,565.82	146,395.0	$ 80,026.06	5,915,620.8	2,073,591.9
Apr-98	5,310,142.3	$ 1,723,265.84	77,266.5	$ 25,939.51	5,387,408.8	1,749,205.4
May-98	4,728,023.3	$ 1,527,690.35	86,440.6	$ 37,259.46	4,814,463.9	1,564,949.8
Jun-98	4,823,778.4	$ 1,543,339.37	43,264.9	$ 23,071.72	4,867,043.3	1,566,411.1
Jul-98	4,669,121.2	$ 1,453,387.07	32,218.0	$ 19,530.91	4,701,339.2	1,472,918.0
Aug-98	4,907,317.5	$ 1,572,697.22	26,278.4	$ 16,079.47	4,933,595.9	1,588,776.7
Sep-98	4,810,329.4	$ 1,560,190.10	25,283.7	$ 15,543.40	4,835,613.1	1,575,733.5
Oct-98	4,674,675.6	$ 1,754,443.52	27,085.6	$ 18,814.76	4,701,761.2	1,773,258.3
Nov-98	4,686,843.8	$ 1,735,810.98	41,382.9	$ 32,491.25	4,728,226.7	1,768,302.2
Dec-98	5,132,276.9	$ 1,841,914.33	41,775.9	$ 33,717.73	5,174,052.8	1,875,632.1
Jan-99	6,343,867.5	$ 2,236,325.02	53,651.2	$ 46,542.55	6,397,518.7	2,282,867.6
Feb-99	5,580,221.8	$ 1,929,888.65	41,437.3	$ 34,287.82	5,621,659.1	1,964,176.5
Mar-99	6,361,913.7	$ 2,197,312.14	45,690.7	$ 34,421.80	6,407,604.4	2,231,733.9
Apr-99	5,190,074.5	$ 1,764,369.27	31,308.8	$ 19,849.12	5,221,383.3	1,784,218.4
May-99	5,038,204.3	$ 1,567,097.69	22,526.0	$ 16,015.78	5,060,730.3	1,583,113.5
Jun-99	4,985,481.5	$ 1,557,161.46	21,485.3	$ 12,771.14	5,006,966.8	1,569,932.6
1995	38,961,648.5	$ 13,978,569.96	15,868,534.3	$ 7,144,781.74	54,830,182.8	21,123,351.7
1996	45,224,447.3	$ 15,608,618.59	10,701,595.0	$ 1,809,310.54	55,926,042.3	17,417,929.1
1997	48,399,761.8	$ 18,047,016.27	6,419,365.0	$ 1,469,431.63	54,819,126.8	19,516,447.9
1998	60,408,545.2	$ 20,551,101.16	937,113.0	$ 417,548.68	61,345,658.2	20,968,649.8
1999	33,499,763.3	$ 11,252,154.23	216,099.3	$ 163,888.21	33,715,862.6	11,416,042.4

Source: Response to the Liberty Consulting Group Data Requests, Set No. 1, LCG-9.

V. Gas Balancing

A. Scope

This chapter is concerned with two important elements of gas balancing. The first is whether the Company has taken reasonable steps to minimize unaccounted-for gas and ensure that balancing and metering errors are not causing increased costs to system supply customers. The second issue, which is particularly important in the context of the Company's Customer Choice program, is whether the costs associated with balancing the loads of small-volume transportation customers are being appropriately allocated to and collected from those customers. In order to address these issues, Liberty's review focused on four specific areas: metering, calculation of the shrinkage factor associated with transportation service, balancing strategy and practice, and capacity assignment in the customer choice program. These areas are discussed in the section below.

B. Background

1. Metering and Testing

EOG engages in both delivery-point and supply-point metering. All delivery point metering off of EOG's system is operated and maintained by EOG. There are four basic metering devices in use: diaphragm, rotary, turbine, and orifice.

Diaphragm meters are tested at the Company's meter shop, and an established meter life has been determined for each kind and size of meter. Earlier in 1999, EOG established a statistical sampling program for the 250- and 400-class aluminum case diaphragm meters. All other diaphragm meters will continue on a fixed-meter life. However, the meter lives will be evaluated continually to determine if they are appropriate. Records of diaphragm meter testing are maintained at the meter shop. Rotary meters are visually inspected for noise, oil levels, and other attributes each time the meter is read. Local management determines the frequency at which a differential rate test is conducted to verify accuracy. This frequency is normally once each year. Turbine meters are visually inspected for noise each time the meter is read. Local management determines the frequency for conducting a spin test to verify accuracy. This frequency is between quarterly and annually. Orifice meters are inspected anywhere from quarterly to once every two years, depending on run and plate size. The Company has standard operating procedures regarding meter change frequency, installation, servicing, and testing [1]. Records for the testing of rotary, turbine, and orifice meters are maintained by local management at each shop.

EOG has 14 pipeline supplier receipt points, with a total of 42 meters that are maintained by its suppliers. The majority of this metering is orifice measurement, with three being turbine meters. Six of these locations use gas chromatographs for gas quality and Rosemount transmitters to measure pressure, differential pressure, and temperature. All locations have electronic flow measurement providing hourly measurement data to the SCADA system. Supplier tests of this measurement equipment are witnessed for accuracy verification by EOG personnel no less than twice each year. During the inspections, electronic transmitters are checked against manual or electronic deadweights,

and calibration to the transmitters is performed by the supplier if required. Where chromatographs are on site, tests are performed on the calibration gas and compared to the calibration bottle analysis for accuracy. Orifice plates are pulled and cleaned and inspected for nicks and damage. Orifice tubes are either "torn down" or bore-scoped on an annual basis for damage, obstructions, and cleanliness. EOG personnel witnessing the testing observe the testing of the meters performed by the supplier and participate in the inspection of the orifice tubes, straightening vanes, and orifice plates. Production metering onto EOG's system is orifice measurement and is maintained by EOG personnel. Eight of the larger locations use electronic measurement with the majority being chart measurement.

2. Transportation Shrinkage

EOG applies a 3.0 percent shrinkage factor to transportation volumes in order to properly compensate sales customers for the costs imposed on the system by transportation activities. This 3.0 percent is composed of Company-use (0.2 percent), system-wide unaccounted-for gas (0.4 percent), a temperature compensation adjustment (1.4 percent), and a supercompressibility adjustment (1.0 percent).

In order to calculate the Company-use percentage, the Company determines the portion of Company-use attributable to Transportation customers (9.46 percent), using test year data from Case No. 93-2006-GA-AIR. The resulting transportation-related Company-use volumes are then compared to total on-system transportation volumes to arrive at a percentage. For the latest (1998) calendar year, Company-use volumes were 2,561,563 Mcf. When multiplied by 9.46 percent, the resulting Company use volumes attributable to transportation customers are 242,324 Mcf. When compared to total on-system transportation volumes, a 0.2 percent factor was obtained.

The portion of system-wide unaccounted-for-gas (UFG), for which transportation service customers are responsible, is calculated as the 3-year moving average system-wide UFG percentage (0.61 percent) and the portion of UFG attributable to transportation (56.86 percent). In order to determine the amount of unaccounted for gas (UFG), the Company compares metered supply volumes to metered requirements, when both are adjusted for pressure, temperature, and super compressibility. UFG is expressed as both an absolute amount and as a percentage of supplies.[2]

UFG can occur for four primary reasons: measurement errors, leaks, theft, or billing errors. Exhibit V-1 shows system-wide UFG over the last 40 years. As can be seen from the exhibit, the amount of UFG is small (never greater than 2 percent), with no apparent trend. EOG believes that this is due to the soil composition of its service territory (a high clay content which tends to seal in any small leakage from gas lines), good maintenance practices, and the fact that its System Control and Data Acquisition (SCADA) system quickly spots major leaks.

The temperature compensation adjustment factor is determined by comparing flowing gas temperature degrees in Rankine (54.93, from July 1997 to June 1998) to a base temperature of 60 degrees, also expressed in degrees Rankine. Over this time period, a volumetric adjustment of 0.985 percent has been calculated. Finally, the 1.0 percent supercompressibility adjustment factor is based on engineering judgment.

3. Balancing Strategy and Practice

Balancing is perhaps the most important of the issues in retail access, because it affects the reliability with which all customers are served. Furthermore, if not properly accounted for, improper balancing could increase costs to system-supply customers. EOG offers three types of balancing: operational balancing, volume banking service, and Interruptible Storage Service (ISS); the Company's strategy with respect to balancing is different, depending on the type of balancing being offered.

Operational Balancing

With respect to operational balancing, the Company's strategy is to hold a certain amount of storage (about 280,000 Mcf of peak day deliverability), which is equal to the difference between the Company's total resources and design day customer requirements. Operational balancing is a short-term service, designed to balance the loads of customers and the gas delivered to the system so as to maintain system integrity and reliability. The capacity used to provide this function is divided 75/25 percent between off-system and on-system storage. Traditional transportation service customers pay for this service through the Transportation Migration Rider, Part A, which is currently set at $.099/Mcf. Revenues from both parts of this rider are credited to sales customers through the GCR. The resources held for operational balancing purposes total about 10 percent of total company resources, as measured by peak-day deliverability. In order to ensure that this level is sufficient to meet both under-deliveries and over-deliveries, the Company maintains a level of capacity for operational balancing purposes equal to the level of capacity implied by the average 4-day weather forecast error.[3]

Volume Banking Service

Volume Banking Service is a longer term service that allows third-party providers to rely on EOG's resources to meet positive differences between customer consumption and their deliveries to the system. The cost basis for this service is CNGT GSS Service. A portion is allocated to transportation customers, primarily based on the estimated cost of service. Revenues from this service are also credited to sales customers through the GCR mechanism. Under this service, transportation customers subscribe to an annual tolerance level of between 2 and 10 percent to be effective on April 1, where the cost of the service is dependent on the tolerance level selected. The cost by tolerance level is as follows:

Tolerance Level	Rate ($/Mcf)
2%	$0.022
4%	$0.027
6%	$0.034
8%	$0.040
10%	$0.046

Other Balancing Services

Finally, the other balancing services (Seasonal Service, Enhanced Seasonal Service, and In/Out Service) are offered to transportation customers outside of the GCR mechanism and are not discussed further in this report.

4. Assignment of Capacity to Third Parties

The Company applies a mandatory capacity assignment policy in the implementation of its Customer Choice Program. The policy is important because it maintains adequate system resources so that non-participating customers can be assured of reliable service, while at the same time providing third-party suppliers with sufficient resources so that they can meet their obligations to their customers. It is EOG's policy to assign all capacity, except that amount needed to meet operational balancing needs, as discussed above. This capacity is allocated on the basis of the design-day requirements faced by the customers of any third-party marketer. Thus, when the design-day requirements of a particular group of customers has been determined, that customer group receives an allocation of FT (including upstream pipeline capacity), CNGT-GSS (including a portion of the 44.9 days of capacity associated with such storage), an on-system storage (including a portion of the 54.8 days of capacity associated with such storage) in proportion to the share of each asset's contribution to meeting design day requirements. There are two other features that characterize the capacity assignment process. First, third-party marketers may elect to substitute local production for FT, at 100 percent load factor. Second, marketers can elect to trade all blocks of capacity less than 100 Dth in order to accumulate blocks at or greater than 100 Dth. This allows them to accumulate capacity of sufficient size to facilitate their own release.[4]

C. Conclusions

1. The Company's approach to metering and testing is consistent with a least-cost energy supply strategy.

EOG has both formal metering and meter testing approaches in place, to ensure that the readings obtained are as accurate as possible. The Company's metering maintenance program is consistent with industry practice. Where suppliers are performing a part of the metering function, that metering is audited for accuracy with an established frequency. In addition, correction factors are properly considered and properly applied in the calculation of unaccounted-for gas volumes. Unaccounted-for gas volumes are small and show no trend through time. Thus, it appears that the Company has taken reasonable steps to minimize unaccounted-for gas and ensure that balancing and metering errors are not causing increased costs to system supply customers.

2. The Company's balancing strategies and the practices that implement this approach are appropriate.

The balancing services that affect the GCR mechanism are operational balancing and volume banking

service. Of most concern to this audit are whether the correct costs of those services are collected from the proper customers. Liberty's audit indicates this to be the case, subject to the correctness of the cost-of-service and the billing determinants used to allocate those costs to particular customers. Since cost-of-service is a litigated matter, this audit assumes that it is correct. Liberty reviewed the allocations of those costs to customers and believe that those allocations are also reasonable. Accordingly, Liberty concludes that the Company's balancing strategies are appropriate, and the range of services appears to be appropriate to meet the needs of third-party suppliers.

3. The Company's philosophy of capacity assignment strategy is appropriate, although the specific allocations to customers may not be. (*Recommendation 1*)

In general, the capacity assignment philosophy used by EOG Gas is appropriate. It avoids stranded costs and it responds to the uncertain planning future created by the uncertainty related to issues such as supplier of last resort and EOG's role as a merchant.

However, if these capacity allocations are not correct, then there is a potential for cross-subsidies. The capacity allocations may not be appropriate for three reasons. First, the design-day weather conditions may not be correct. Second, the load requirements at those design-day weather conditions may not be correct. And finally, since the capacity allocated is based on a simple design-day allocation factor, it does not reflect differences in load factors among the customers to whom the capacity is being allocated.

4. EOG's reporting procedures related to the Customer Choice Program are appropriate.

In the course of this audit, Liberty evaluated all of the Company's reporting of the Customer Choice Program to the Commission. These filings appear to be complete and comprehensive. In addition, the Company has an organization in place to meet all current reporting requirements, and appears to have been meeting these requirements over the audit period.

5. EOG's administration of the Customer Choice Program is appropriate.

Discussions with the Company indicate that the Company is confident that the necessary changes to its billing programs and processes will be in place by the fall of 2000 so that this should no longer be an impediment to full scale implementation of the Customer Choice Program. With this assurance from the Company, it appears that the Company has the necessary systems and procedures in place to move the Customer Choice Program to full scale, should it be determined that this is in the best interests of customers.

D. Recommendations

1. **The Company should change the allocation factors used in the capacity assignment process to minimize the potential for cross-subsidies between sales and delivery service customers and for different size and different load factor customers participating in the customer choice program.** (*Conclusion 3*)

In order to avoid cross-subsidies, the correct amount of resources must be assigned to customers migrating from sales to delivery service. At a minimum, the relative allocation of base, peaking, and storage resources to any particular customer should be based on that customer's load factor.

While Liberty estimates that this could have approximately a 3 percent impact on the capacity assigned to the residential class (based on year 2000 design-day and normal weather sales figures), specific allocation factors are not calculated here for three reasons. First, while FT contracts should be allocated on the basis of throughput rather than design-day capacity, the Company should have some discretion in precisely how this recommendation is applied in order to maintain consistency with its other cost-allocation factors. Second, the specific allocation to any marketer will be a function of that marketer's mix of residential and nonresidential customers. Thus, in the absence of customer mix information, specific allocation factors are not entirely relevant. Finally, the Company has indicated that they are moving away from capacity allocation and toward a comparable capacity requirement when the Customer Choice program moves to full scale implementation. Thus, any mandatory capacity assignment allocation problems are transitory.

END NOTES

1. Standard Operating Procedures 8-A, Gas Meter System Capacity & Changing Schedules; 8-B, Large Volume Commercial & Industrial Meters Standard Practices; 8-C, Inspection Frequency for Orifice Measurement of Well Production; 11-A, Installing, Servicing, and Testing Gauges used for Purposes Other Than Measurement; and 11-B, Installing, Servicing, and Testing Gauges used for Measurement, Monitoring & Control; provided in response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-21.

2. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-10.

3. October 5, 1999 meeting with Company personnel.

4. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-24.

Exhibit V-1
East Ohio Gas Company
Historical System-Wide Unaccounted-For Gas

Year		Total Supply Mcf	Adjusted Unaccounted-For Volume	Adjusted Unaccounted For %	3 Year Rolling Average
1957-1958		272,251,670	(445,591)	-0.16%	-0.05%
1958-1959		303,564,008	206,040	0.07%	-0.03%
1959-1960		310,555,513	(1,519,029)	-0.49%	-0.19%
1960-1961		325,595,249	277,826	0.09%	-0.11%
1961-1962		332,103,592	182,723	0.06%	-0.12%
1962-1963		357,041,864	1,405,235	0.39%	0.18%
1963-1964		350,465,463	165,913	0.05%	0.17%
1964-1965		383,365,158	1,437,164	0.37%	0.27%
1965-1966		387,484,285	1,382,358	0.36%	0.26%
1966-1967		403,322,024	3,275,599	0.81%	0.51%
1967-1968		429,981,195	2,474,967	0.58%	0.58%
1968-1969		439,938,097	53,103	0.01%	0.47%
1969-1970		459,099,644	4,957,934	1.08%	0.56%
1970-1971		461,120,700	3,985,995	0.86%	0.65%
1971-1972		449,583,239	2,599,660	0.58%	0.84%
1972-1973		462,330,132	1,071,679	0.23%	0.56%
1973-1974		453,947,920	2,029,194	0.45%	0.42%
1974-1975		442,845,247	(1,607,300)	-0.36%	0.11%
1975-1976		410,071,817	965,825	0.24%	0.11%
1976-1977		438,701,679	(657,747)	-0.15%	-0.09%
1977-1978		443,843,487	3,297,884	0.74%	0.28%
1978-1979		446,514,057	2,467,458	0.55%	0.38%
1979-1980		404,872,712	605,864	0.15%	0.48%
1980-1981		392,071,397	3,416,240	0.87%	0.52%
1981-1982		381,473,980	2,266,574	0.59%	0.54%
1982-1983		325,141,266	(566,440)	-0.17%	0.43%
1983-1984		350,594,967	(2,326,262)	-0.66%	-0.08%
1984-1985		303,968,059	1,944,906	0.64%	-0.07%
1985-1986		290,055,315	2,418,738	0.83%	0.27%
1986-1987		281,463,710	5,584,530	1.98%	1.15%
1987-1988		294,728,225	2,307,717	0.78%	1.20%
1988-1989		291,828,499	(1,705,046)	-0.58%	0.73%
1989-1990		282,187,633	510,555	0.18%	0.13%
1990-1991		260,304,228	1,855,860	0.71%	0.10%
1991-1992		278,505,876	223,446	0.08%	0.32%
1992-1993		288,457,825	1,170,745	0.41%	0.40%
1993-1994		316,938,863	2,378,214	0.75%	0.41%
1994-1995	(1)	289,009,997	2,248,974	0.78%	0.64%
1995-1996	(2)	347,025,019	(166,381)	-0.05%	0.49%
1996-1997	(2)	328,411,513	5,933,607	1.81%	0.85%
1997-1998	(2)	303,882,476	239,956	0.08%	0.61%

(1) Includes former River Gas Company volumes.

(2) Includes former River Gas Company and West Ohio Gas Company volumes

VI. Regulatory Management

A. Scope

This chapter addresses the Company's involvement in proceedings involving the level, quality, and cost of services before the FERC. Specifically, because of the impact that federal policies can have on the Company and its customers, it is important to assess how EOG has maintained an organized and focused effort to identify, understand, and influence federal regulatory policies and decision-making. To do this well, the Company must identify regulatory requirements, policies, and emerging issues, evaluate the consequences of those issues for the Company and its customers; identify opportunities to constructively influence emerging requirements to minimize adverse effects on providing service; establish and communicate to regulators, with a single voice, clear positions and responsive actions to applicable policies and requirements; and coordinate compliance proceedings or information requests.

B. Background

Since July 1997, FERC monitoring and intervention activity has been conducted and coordinated by CNG's centralized LDC Gas Supply Group ("GSG") with CNG LDC direction, input, and assistance as necessary. There are three critical elements to the approach that EOG uses in approaching FERC involvement. First, a FERC Coordinator serves as an initial point of contact between the Company and the FERC regulatory process. Second, the Company's decision-making process helps to determine which cases the Company would like to be involved in and what form the involvement will take. Finally, the Company uses a regular and formal monitoring and follow-up process for all cases.

The FERC Coordinator is resident in the Gas Supply Department and reports to the Director, Market Area Gas Acquisition. This individual has general responsibility to lead and coordinate LDC FERC activity; monitor, analyze, and make recommendations concerning pipeline filings; and develop relationships with LDC regulatory representatives and federal and state regulators. Specific responsibilities of this indivdual are to lead and coordinate LDC FERC activity on issues such as tariff changes, operational concerns, cost of service, cost allocation, and rate design; work with LDC rate and regulatory representatives to determine the level and type of involvement undertaken in FERC proceedings; develop and maintain relationships with LDC rate and regulatory representatives, federal and state regulators, pipeline regulatory personnel, and LDC counterparts; perform analysis of pipeline filings and their impact on CNG LDCs; develop and recommend a course of actionfor each filing; participate in proceedings to facilitate favorable regulatory (FERC) action; minimize costs billed to LDCs to help assure full recovery of gas costs and aid competitiveness of CNG LDCs; project pipeline rates and analyze impact; advocate CNG's position to regulators and others; keep current on industry and regulatory trends; and recommend appropriate courses of action.[1]

The FERC Coordinator is primarily in a monitoring role. That is, it is the responsibility of the FERC Coordinator to ensure that the Company is on the service list of all twelve pipelines on which it receives service and to review industry publications to ensure that it is aware of any other proceeding that may affect the Company. This individual then employs a five-step process to determine the extent

to which the Company should actively become involved in any proceeding before the FERC. First, a quick review is conducted to determine if the outcome of the proceeding will have any impact on EOG. The Coordinator then develops an assessment of how active this participation should be. Specifically, the Coordinator determines whether participation will require assistance from other LDCs, outside consultants, or other outside parties. Third, the Coordinator works with each of the CNG LDC rates areas, as well as with the Gas Supply Group, to develop positions and strategies. Next, the Coordinator goes back to the stakeholders with recommendations and an action plan. Finally, the Coordinator will participate and execute the plan.[2]

There are three general types of proceedings in which the Company becomes involved: Notices of Proposed Rulemaking or Notices of Inquiry, proceedings involving pipelines that are not EOG suppliers, and proceedings involving pipelines that are EOG suppliers. Each type of proceeding that has been identified for further action requires a different strategy. On occasion, EOG will not file comments in proceedings that will have little or no direct impact on the Company or where it is aware of intervening parties that will be actively defending specific positions with which the Company is in agreement

With respect to Notices of Proposed Rulemaking or Notices of Inquiry, EOG initially determines whether the proceeding may involve issues that directly impact the company. Having made an affirmative decision, EOG next determines how to file comments. One or more of four options may be pursued. First, the Company may choose to file comments on its own behalf. EOG adopts this course when other parties do not appear to share its position or have no interests in the proceeding. Second, the Company may choose to file comments jointly with the CNG System LDC affiliates. This course is adopted by EOG when the CNG LDC's hold consensus positions that differ from those held by other affiliate companies, e.g., CNG Transmission Corporation. Third, the Company may choose to file comments jointly with the CNG System Companies. EOG adopts this course when all CNG companies hold a common position that enables a joint intervention or joint comments to be filed. And finally, the Company may choose to file comments as a member of the American Gas Association ("AGA"). EOG adopts this course when there appear to be issues on which there is a broad consensus of LDC interests and where the larger group will appropriately defend its interests.

In proceedings involving pipelines that are not EOG suppliers, the Company monitors the notices of filings, articles in industry publications and other intelligence concerning pipelines that are not EOG suppliers. On occasion, EOG will intervene or intervene and protest if the proceeding has issues that, once decided, may have a precedential effect on all pipelines. Whether the Company acts alone or jointly is decided as described above.

In proceedings involving pipelines that are not EOG suppliers, EOG reviews all filings of its pipeline suppliers and routinely intervenes in Section 4 proceedings and other rate or certificate dockets that may materially impact the cost or quality of service received. Such interventions and subsequent participation typically involve EOG working alone with no joint intervener, jointly with the CNG System LDC affiliates, as a member of a formal or informal Customer Group, or as a member of the AGA. As with generic proceedings, EOG intervenes alone when there do not appear to be issues of common interest with other parties or where EOG believes that it must closely monitor developments in the proceeding in order to prepare discovery and/or sponsor testimony if necessary. EOG intervenes jointly with CNG System LDC affiliates when the CNG LDCs hold consensus positions.

If, through the course of such proceedings, different positions arise, the dissenting company is encouraged to sever itself from the broader group with respect to that particular issue. EOG intervenes as a member of a formal or informal Customer Group when there is a group of customers which, from the outset, hold common positions in a particular proceeding or which subsequently realize their common interests even though each may have intervened individually. Examples include participation as a CNG customer group on an upstream pipeline, in an informal partnership with one or more customers in addressing a particular issue, and as part of a customer group charged with negotiating a settlement on a particular issue. EOG believes customer groups are to be particularly cost effective when the proceeding involves extensive discovery, testimony and briefings and an extended hearing. Finally, EOG intervenes as a member of the AGA when there appear to be issues on which there is a broad consensus of LDC interests and where the larger group will appropriately defend its interests.[3]

Between the period August 1, 1997 through July 31, 1999, EOG actively participated in over 200 docketed proceedings at the FERC.[4] In order to monitor the progress of its many FERC Interventions, EOG develops a monthly FERC Management Update.[5] This update provides the monthly activity in each open docket and a contact number in the event that any individual on the circulation list desires additional information. Thus, EOG makes FERC information available on a timely basis.

EOG maintains a filing summary by docket and pipeline and an issues summary so that the Company can monitor events across pipelines on such matters as tariffs, cost-of-service, cost allocation, and rate design. It also keeps track of results and outcomes of the proceedings it is monitoring.

C. Conclusions

1. EOG's participation at the Federal level is well managed and consistent with a least-cost gas supply strategy.

The Company implements its FERC regulatory strategy both efficiently and effectively. One individual at the Corporate level identifies regulatory requirements, policies, and emerging issues and effectively communicates these to the appropriate contact at each LDC, including EOG. Then, the Coordinator and the LDC representatives evaluate the consequences of those decisions for the Companies and their customers. These individuals are able to identify opportunities to constructively influence emerging requirements to minimize adverse effects on providing service. When decisions on whether to intervene and the form that intervention will take have been decided, the Company can then establish and communicate to regulators with a single voice, clear positions, and responsive actions to applicable policies and requirements. The FERC Coordinator also integrates the often extensive efforts required in compliance proceedings or information requests.

END NOTES

1. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-8.
2. Meeting with EOG management personnel on October 5, 1999.
3. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-13.
4. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-12(a).
5. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-12(b).

VII. Response to Regulatory Change

A. Scope

This chapter of the report focuses on how the Company has changed its strategies and tactics in response to regulatory changes. The Company's Energy Choice Program is central to the issues in this chapter on Regulatory Change because of its pervasive effect on the planning activities of the EOG. This chapter discusses the impacts that Energy Choice has had, and will have on EOG; also discussed are the issues that have come into focus as a consequence of the Energy Choice program, and the strong interrelationships between these difficult issues of merchant function, supplier of last resort, stranded cost recovery, comparable capacity requirements and capacity assignment.

B. Background

1. The Energy Choice Program

On September 25, 1996, East Ohio filed an application with the Commission for the approval of two new transportation services, a new pooling agreement and a revised transportation migration rider to be issued in conjunction with a new Core Market Aggregation Service (the Energy Choice Program). The Commission approved East Ohio's application on July 2, 1997 and enrollment in the initial 18-month phase of the Energy Choice program began in October 1997. The program was subsequently extended to encompass the entire audit period. EOG's Energy Choice Pilot Program has been in place in a ten-county pilot area of approximately 170,000 customers, (157,000 residential and 13,000 nonresidential) since its approval by the Commission. As of March, 1999, a total of 33,054 (approximately 19 percent of) residential customers (including 3,549 PIP customers) and 2,710 (approximately 22 percent of) nonresidential customers have selected suppliers under this program. In all, twelve marketers are actively participating in the program. EOG has had and continues to address the billing problems associated with the program. In light of these problems and the Y2K issues currently being addressed, the Company was not able to expand the program during the winter heating season of 1999/2000.[1] Discussions with the Company indicate that these billing problems are being rectified, and the Company is confident that it can offer the Energy Choice Program on a full-scale basis in the Fall of 2000.[2]

In all, eleven marketers are actively providing gas service to EOG customers located in the southern ten-county pilot area, with one marketer also serving PIPP customers located in the pilot area. Another six marketers have submitted information for credit approval to participate in the program, but are not active. Seven of the active marketers are currently serving fewer than 200 customers, the minimum number of customers that a marketer would be required to serve in order to participate in the Energy Choice Program if EOG were enforcing its CMAS Special Terms and Conditions.

The Company's intention to make Energy Choice available to all customers during the Fall of 2000 creates a number of interrelated problems for the Company. If a significant number of customers elect to participate in the Energy Choice program and select suppliers for the gas commodity other

than East Ohio, then East Ohio must consider whether it continues to make good business sense for them to remain in the business of being a "merchant" supplier of natural gas. If the decision is made that this is no longer a good business decision, and in fact East Ohio does leave the "merchant" business, then the real issue of who is the supplier of last resort must be resolved. If they are not the supplier of last resort, then who is? Also, if they have left the merchant business, and are no longer the supplier of last resort, then how do they recover stranded costs. A large portion of stranded costs would be those costs that were incurred to serve sales service customers who were formerly on the East Ohio system, but with such facilities and their costs no longer required to serve these now-departed customers. These are all significant issues that must be dealt with not only by East Ohio, but also by the Commission as it examines all of the available alternatives for creating the framework within which the Ohio LDC's operate to provide reliable gas service at the lowest possible cost

To more fully develop these issues, consider first the issue of stranded costs. Stranded costs are those costs that were recoverable under a regulated regime, but will no longer be recoverable under a competitive regime. Stranded costs include both future liabilities and current assets that will no longer be recoverable in a market environment. The components of future liabilities that are included in this definition are: gas supply resources (commodity contracts, transportation contracts, and storage resources) and incremental (or transitional) costs incurred to implement transportation for small volume customers (education and information systems costs). Embedded assets include gas plant in service, construction work in progress, regulatory assets, working capital, and environmental liabilities. For planning purposes, the most relevant of these costs are those associated with gas supply resources, particularly transportation contracts and storage resources.

In order for a cost or an asset to be stranded, three conditions are required. First, the cost or asset has to be included (or at least includable) in rates. Second, the asset (or the resource for which a cost is incurred) must be utilized in the provision of utility service. This omits from consideration as a stranded cost those resources that will remain to provide regulated, merchant service to sales customers and those resources that will be necessary for system operations under an unbundling scenario. Finally, the cost or asset must have a regulated cost above market value. Thus, if the Company can free itself of its gas supply contract obligations and receive compensation for doing so at a level equal to its costs, then the asset (or the resource for which a cost is incurred) is not considered to be stranded.

There is also a distinction between "strandable" costs and "stranded" costs. A cost is "strandable" when it could properly be included in the regulated rates of the Company but is no longer needed to provide regulated, utility service. A cost becomes "stranded" when, in addition to no longer being needed, the Company cannot collect the costs of the resource through some mitigation measure such as capacity release or asset sale. In other words, "strandable" resources satisfy the first two conditions that have been established above for a cost or an asset to be stranded. "Stranded" resources satisfy all three.

The Company has chosen to deal with the potential stranded cost problem to this point through mandatory capacity assignment, where the capacity assigned is subject to recall in the event of a supply shortfall. While this has not been popular among suppliers, it has protected those sales service customers not eligible to choose as well as those who are eligible but "choose not to choose." However, there are two reasons to believe that this strategy will not be available to the Company in

the future to mitigate stranded costs. First, up until this point, customer choice has been offered on a pilot program basis. Thus, even if all eligible customers availed themselves of small volume transportation service, less than 15 percent of the Company's supply portfolio would be at risk. If the number of eligible customers is expanded and all customers receive some allocation of capacity costs, it may not be politically feasible to continue this practice. Second, the contracts into which the Company has entered have been in existence prior to the time that customer choice was contemplated. Thus, there is a legitimate reason to assign the costs of these contracts to migrating sales customers. However, many of these contracts are now coming up for renewal and it will be difficult to argue that these contracts should be eligible for stranded cost recovery when the possibility of customer choice is obvious.

In response, and as described in the Gas Supply Planning and Management chapter of this report, East Ohio has circulated a proposal among Staff and third party providers to implement a comparable capacity requirement in its CMAS tariff. Under this proposal, all third-party providers would need to demonstrate that they hold sufficient firm capacity to East Ohio's citygate to serve their own customers. This potential requirement, if implemented, will provide the Company with assurances that reliable citygate capacity is available to serve human needs customers. With these assurances, the Company can release much of its strandable capacity and thereby help to mitigate the Company's stranded cost exposure. However, short of complete freedom from merchant or supplier-of-last-resort responsibilities, this provision will also not completely eliminate the Company's stranded cost exposure.

In deciding whether to remain in the merchant function, East Ohio must carefully weigh the arguments for and against retention of this responsibility. Arguments for retention are as follows:

- Many customers will elect utility merchant service if it is available. Thus, denying this particular choice may not be consistent with the Commissions objectives with respect to customer choice.

- Supply security/reliability can be managed directly, rather than depending on others to perform.

Arguments against retention are as follows:

- The merchant function involves the risk of disallowances for "imprudent" expenditures. This same risk is present in today's environment.

- The merchant function involves the risk of stranded costs in the absence of mandatory capacity assignment if customers leave system supply faster than contracts expire.

- The merchant function requires personnel and expertise that might be more productively (profitably) employed in other activities.

- The "conventional" merchant function with its attendant periodic adjustments and dollar-for-dollar cost recovery limits the supply options that the company can offer its customers. However, this limit can be mitigated by obtaining commission approval of variations such as those contemplated by HB 476.

- The GCR provides a target for others to price from, which is not necessarily market based.

- Unbundling in some areas will likely lead to market-priced components of bundled service, *e.g.*, market-priced transportation services, storage services, peaking services, etc. Continuing to operate a GCR-style supply function will limit market pressure on component pricing and efficiency within East Ohio's supply function.

- Deciding now to retain the function may postpone necessary preparation for effective competition in an unbundled environment.

The supplier-of-last-resort function subsumes three inter-related sub-issues:

- Who provides back-up supply when a supplier fails to deliver?

- Who provides supply, and how are the costs recovered, when serving high-risk customers, *e.g.*, slow-pay/no-pay customers, poor credit histories, etc.?

- Who provides supply to support extensions of service (obligation to serve)?

All three of these functions have traditionally been performed by East Ohio.

Arguments for retention of this function are:

- Retaining the supplier of last resort obligation allows the company to plan for, and provide for in its rates, contingencies for which it is likely to be blamed even if someone else's fault.

- Retaining the obligation allows the company to exercise more control over system management and system integrity.

- Retaining the obligation allows the company to structure the costs of meeting a supply contingency as a charge paid by all customers, rather than having to deal with the public-relations consequences (and possibly financial consequences) of acquiring some very high-cost supply under emergency conditions. In this way, the LDC can: (1) manage the cost consequences of a supply contingency through a form of insurance, to be paid by all customers, rather than having to bill and collect for them when a contingency event occurs and (2) manage public-relations risks associated with acquiring high-cost supply.

- All three of these functions are probably performed most efficiently and cost-effectively when managed on a consolidated or centralized basis.

The primary argument against retention of this function is that any services actually provided in this area are likely to be expensive to provide. The incremental costs of providing service are likely to be higher (perhaps considerably higher) than the average costs of providing the same service. Thus, it will likely be difficult to charge what it really costs to provide the services.

Thus, as the above discussion attempts to make clear, while there has been no change in either the

Company's primary planning objective of providing reliable service at the lowest possible cost, or the objectives of negotiating sound agreements with suppliers which best protect the Company and its customers, the uncertainties created by Customer Choice have caused significant planning problems for the Company. This is a problem with significant implications for both EOG and its customers because of the number of pipeline contracts coming up for renewal in the next two years, as shown in Exhibit II-9.[3] EOG will be struggling with questions such as: What approach should be taken in dealing with these contracts? What assumptions should be made with respect to the role as a merchant supplier, and as a supplier of last resort? And therefore, what should the strategy be with respect to recovery of stranded costs? Finally, should EOG pursue the mandatory capacity assignment philosophy? Liberty's conclusions and recommendations that follow attempt to provide guidance for both East Ohio and the Commission in these complicated and interrelated areas.

2. Changes in Supply Activities

There have been no significant changes in the Company's supply activities during the audit period.

3. Management of Capacity

The Company has actively been involved in the management of its capacity over the audit period. Management of capacity has resulted in significant short-[4] and long-term[5] releases. The release revenues appear to be allocated among sales and transportation customers appropriately.

C. Conclusions

1. **Even if the Company successfully implements its comparable capacity requirement, absent a definitive decision on the issues of merchant function and supplier of last resort, it may still need to implement some mechanism to protect its sales service customers from stranded cost exposure.** (*Recommendation 1*)

The Company has circulated a comparable capacity requirement among Staff and its third party suppliers so that it can begin to address its renegotiation of capacity entitlements with pipeline suppliers. While this will provide the Company with a basis upon which to proceed in these negotiations, it will not ensure that the Company has no stranded cost exposure. Specifically, if more customers avail themselves of choice than are projected by EOG, the costs incurred have the potential for becoming stranded. The Company has acted to minimize short term transition costs through capacity assignment. However, this does not seem to be a viable option for the future, due to the potential magnitude of the costs and the vintage of costs incurred. The Company must resolve the issues discussed above so that it can mitigate future stranded costs.

2. **The CNG LDC Gas Supply Group is a structure that is robust enough to accommodate regulatory changes faced by the Company.**

When the CNG LDC Gas Supply Group was established, a complete evaluation of staffing levels and skills mix was performed. The organization resulting from that evaluation should be able to address Customer Choice and other regulatory changes on the horizon.

3. **Management of capacity is the single most significant issue facing the Company at this time.** (*Recommendation 1*)

Due to the uncertainty surrounding Customer Choice, the Company's responsibility for supplier-of-last-resort and merchant responsibilities, the Company's exact role with respect to supply obligations is not clear. However, a significant window of opportunity now exists as contracts are being renegotiated. This will close in the future. The Company has chosen to manage this issue through capacity assignment (in the short term) and comparable capacity requirements (in the longer term).

D. Recommendations

1. **The Company must develop a clear and concise gas-supply strategy before the current transportation contracts must be renegotiated.** (*Conclusions 1 and 3*)

The primary action that the Company must take in order to manage in the face of regulatory change is to adopt an overall strategy with respect to the issues of merchant function and supplier of last resort. Having developed positions on those issues, the Company must then aggressively pursue a Commission ruling pursuant to these issues.

In the meantime, the Company should continue the policy of capacity assignment.

Depending on how the Commission rules on the two primary issues, then the Company may want to consider the implementation of a comparable capacity requirement, which may be needed to protect sales service customers and Company shareholders from the consequences of stranded costs. Further, the Company may even wish to consider the implementation of a stranded cost recovery mechanism.

While a comparable capacity requirement will protect and mitigate the Company's stranded cost risk, it will not eliminate it. Accordingly, the Company may need to pursue a strategy of implementing a stranded cost recovery mechanism to further insulate sales service customers and Company shareholders from the consequences of stranded costs.

Ultimately, this recommendation focuses on the issues of reliability of supply and who pays for that reliability. We are mindful of the Commission's opinion as expressed in Finding and Order for Case No. 98-593-GA-COI et al., entered in the Journal on December 2, 1999, and as summarized by the statement that "transitioning to a true competitive market is the best way to resolve the reliability issue." However, our concern is that the necessary mechanisms be in place during the transition period to ensure that this end-state market is ultimately realized.

END NOTES

1. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-1.

2. Meeting with Company management on November 9, 1999 and follow-up phone conversation on December 16, 1999.

3. Please see Exhibit II-9

4. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-6.

5. Response to The Liberty Consulting Group Data Requests, Set No. 1, LCG-23.

VIII. Affiliate Relationships

A. Scope

This chapter provides the results of Liberty's examination of the supply, transportation, and storage relationships between EOG and affiliated companies. That examination considered the structure of the relationships among affiliates, the flexibility of affiliate contracts, the availability of alternatives to affiliates, and the patterns in affiliate transactions. The review sought to evaluate EOG's controls on affiliate transactions and to determine whether those affiliate transactions were conducted on an "arm's length" basis.

B. Background

1. Affiliate Relationships

Chapter III of this report describes the overall structure of CNG corporate entities. EOG is the LDC that is part of CNG's regulated operations reporting to Senior Vice Presidents for Distribution, Pipeline, and Commercial Operations. Also reporting to the Senior Vice President for Commercial Operations is the CNG LDC Supply Group, which acts as the gas purchasing agent for EOG and the other LDCs within CNG, Hope Gas, Peoples Gas, and Virginia Natural Gas.

During the audit period, EOG had a significant affiliate relationship with CNG Energy Services, and less significant relationships with CNG Transmission, CNG Products & Services, and CNG Field Services. EOG also purchased some gas from its sister LDC, Hope Gas. Until it discontinued operations on July 31, 1998, an affiliate called CNG Energy Services sold gas to EOG through arrangements made by the LDC Supply Group. In addition to the purchases from Hope Gas, EOG purchased some small amounts of gas from CNG Products & Services and CNG Field Services. CNG Transmission provided transportation, interconnection, and storage services to EOG.

CNG Products & Services (also known as CNG Retail Services and East Ohio Energy) is an unregulated entity in both the commodity retail gas business and in providing specific services such as gas line replacement work. CNG Products & Services is located in Pittsburgh, but is in non-proximate and separate facility from the CNG LDC Supply Group, which is also in Pittsburgh. CNG Products & Services reports to the CNG Chairman through a different Senior Vice President than do the regulated operations of or associated with EOG.

2. Affiliate Relation Controls

There are two procedures that deal with EOG's dealings with affiliates. The first is the General Terms and Conditions of Core Marketing Aggregation Service. This standard of conduct applies to The Energy Choice Program and deals with matters such as not giving preference to marketing affiliates or customers of marketing affiliates, separating the activities of its operating employees from those of its marketing affiliate, and keeping separate books and records from marketing affiliates. The

second is the Part 161 Regulations issued by FERC for Standards of Conduct for Interstate Pipelines with Marketing Affiliates.

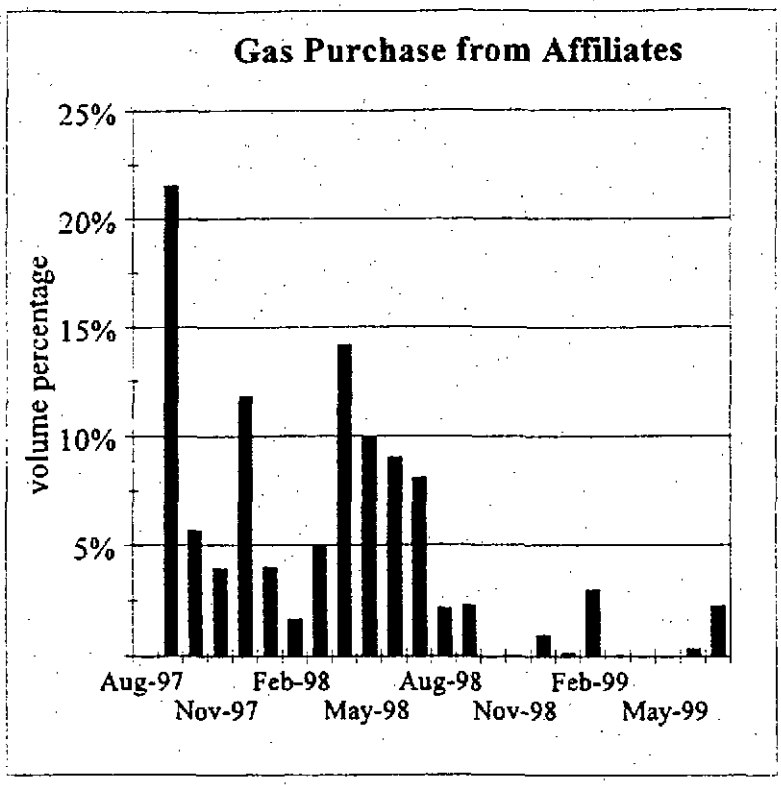
The number of people within EOG and its purchasing agent group that are involved in the arrangements for purchasing, storage, and transportation of gas is small. Nevertheless, EOG relies on informal communications for assurance that employees are familiar with these procedures. Moreover, there has been no specific external or internal audits performed that focused on affiliate relations and affiliate transactions.

3. *Gas Purchasing from Affiliates*

EOG indicated that it has complete discretion to contract for their own gas supply and has unrestricted authority to seek gas supply arrangements on the most favorable terms possible. Liberty's review of the contracts with affiliates confirmed that not only are they very similar to industry standard contracts, but also they are identical to the contracts with the non-affiliated entities.

Liberty also reviewed contract summaries to compare and evaluate the affiliate and non-affiliate dealings. Because of the variety of pricing approaches used (e.g., fixed price for the month, fixed price for days, first-of-the month index) and because the term for purchases may vary considerably, direct comparisons are problematic. To the extent that such comparisons can be made, Liberty did not detect more favorable terms to affiliate suppliers.

Liberty also reviewed the volume of gas purchases at each delivery point to determine the extent of affiliate purchases that may influence pricing and to get a measure of the overall level of affiliate transactions. The chart below shows the volume percentage of EOG's gas received from affiliate suppliers for each month of the audit period.



In only one month did the volume from affiliates exceed 15 percent and in several months no gas was purchased from affiliates.

C. Conclusions

1. EOG has unrestricted flexibility to seek gas supply arrangements on the most favorable terms, and contracts with affiliates do not differ materially between affiliated and non-affiliated suppliers.

Liberty observed no difference in the contracts between affiliated and non-affiliated suppliers. Moreover, the was no discernible difference in the pricing arrangements between affiliated and non-affiliated suppliers.

2. EOG appears to have made good-faith efforts to evaluate supply services from unaffiliated companies and affiliates do not dominate EOG's gas supply.

EOG obtains gas and gas services from a variety of suppliers. During the audit period, those services from affiliated suppliers did not dominate the supply. During several months of the audit period, EOG did not receive any gas from affiliated suppliers.

3. **EOG's controls over affiliate transactions could be strengthened.** (*Recommendation 1*)

While the review of EOG's affiliate transactions did not detect any problems, EOG's controls over affiliate transactions were informal. EOG relied on normal communications to ensure that employees were aware of procedures and rules. There was no focus on affiliate dealings by the internal audit group.

D. Recommendations

1. **EOG should formalize the assurance that employees are aware of affiliate relations procedures and codes of conduct. In addition, internal audits should periodically monitor affiliate relations and transactions.** (*Conclusion 3*)

Instituting a more formal program to ensure that employees are aware of affiliate procedures and codes of conduct will provide added assurance that no favoritism to affiliates will arise in the future. The cost of such a program with the number of people involved will be minimal while the benefits of possibly eliminating a future problem could be great. Moreover, EOG has indicated to Liberty that it agrees with this recommendation. The program might simply include distribution of procedures and employee confirmation that he or she understands and will comply with them.

As an additional measure of assurance, the internal audit group should periodically monitor aspects of affiliate relations and transactions, including a review of contracts for supply, storage, and transportation services, the results of actual affiliate transactions, and the organizational autonomy of EOG and non-regulated providers of related services. Noteworthy is the fact that EOG has indicated it also agrees with this recommendation.