BEFORE THE STATE OF NEW JERSEY

BOARD OF PUBLIC UTILITIES

OFFICE OF ADMINISTRATIVE LAW

I/M/O THE PETITION OF NEW JERSEY NATURAL GAS COMPANY FOR APPROVAL OF AN INCREASE IN GAS RATES, DEPRECIATION RATES FOR GAS PROPERTY, AND FOR CHANGES IN THE TARIFF FOR GAS SERVICE, PURSUANT TO N.J.S.A. 48:2-18 AND 48:2-21.1	)	**BPU Docket No. GR07110889** **OAL Docket No. PUC-12545-07**

DIRECT TESTIMONY OF MICHAEL J. MCFADDEN, A. E. MIDDENTS, AND JOHN N. PETERS ON BEHALF OF THE NEW JERSEY DEPARTMENT OF THE PUBLIC ADVOCATE DIVISION OF RATE COUNSEL

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TABLE OF CONTENTS

I. INTRODUCTION

Q. Please state your name, title, and business address.

A. My name is Michael J. McFadden and I am the president of McFadden Consulting Group, Inc. ("McFadden Consulting"). My business address is 625 S. York Street, Denver, Colorado 80209.

My name is A. E. "Pete" Middents and I am an independent Natural Gas Industry Consultant. I am currently retained as a Senior Consultant by McFadden Consulting. My business address is 3 University Lane, Greenwood Village, Colorado 80121.

My name is John N. Peters and I am an independent Natural Gas Industry Consultant. I am currently retained as a Senior Consultant by McFadden Consulting. My business address is 8629 East Pawnee Drive, Parker, CO 80134.

Q. Please provide a summary of your qualifications and experience.

A. Copies of our resumes are contained in the Appendix.

Q. Was this testimony prepared by you or under your direct supervision?

A. Yes.

Q. What is the purpose of your panel's testimony?

A. The New Jersey Department of the Public Advocate, Division of Rate Counsel ("Rate Counsel') retained the McFadden Consulting Group, Inc. ("McFadden Consulting") to review and evaluate the New Jersey Natural Gas Company's ("NJNG" or

"Company") management of its gas distribution and transmission infrastructure, as it relates to the Company's requested increase in gas rates.

How NJNG plans, engineers, and constructs its facilities has a tremendous impact on its rates for service. The cost of constructing the facilities is incorporated into its investment in utility facilities, which then becomes part of its rate base. The Company's allowed earnings are a function of that rate base. Additionally, a significant portion of its expenses relate to operating and maintaining the existing facilities. In connection with the Company's rate case filing, Rate Counsel wanted an independent evaluation of how NJNG performs in the areas of planning, engineering, and construction to ensure the costs associated with its facilities are reasonable.

The overall purpose of this testimony is to present the observations, findings, conclusions, and recommendations pertaining to our review and evaluation.

The remainder of this testimony is divided into the following sections:

- Findings, Conclusions, & Recommendations
- Scope of Review and Evaluation
- Information Reviewed
- Focus Areas
- Recommendations.

II. FINDINGS, CONCLUSIONS, & RECOMMENDATIONS

Q. Please summarize your findings, conclusions, and recommendations regarding the Company's management of its gas distribution and transmission infrastructure.

A. In order to meet the challenges of deregulation, increased competition, environmental pressures, merger and acquisition activity, eroding customer satisfaction, increasing energy costs, increasing pipeline safety regulations, and pressure to increase shareholder value, it is necessary that utilities optimize the efficiency of all physical assets. "Asset Management" is a subject that is receiving increasing interest in all industries, but is particularly applicable to utilities including gas distribution companies ("GDCs"). In industries that are capital intensive, it is especially important to optimize physical assets. The discipline of asset management is particularly applicable to NJNG, which is experiencing significant growth and is evolving into a larger, more complex organization. Additionally, the Company has an aging infrastructure, has comparatively high labor costs, and operates in a highly populated and congested environment. As such, historic management practices are not necessarily adequate as the Company evolves.

In evaluating the Company's management of the projects reviewed, two troublesome patterns emerged. The first relates to the Company's apparent lack of economic assessment of alternatives. The second is the minimal amount of documentation developed during the decision and cost monitoring processes.

As it relates to the first issue dealing with the Company's apparent lack of economic assessment of alternatives, our review indicates that the Company lacks discipline and structure in its decision-making process relating to major capital expenditures. The Company's capital expenditure process can be characterized as a "utility obligation to serve" approach while a more traditional "business" approach may be in order. For example, when a customer need is identified, the Company tends to "engineer" the most traditional method of satisfying that need as contrasted to identifying and evaluating alternative methods. The recent upgrading of the liquefied natural gas ("LNG") plant in Howell is a prime example of this approach. While the replacement of the aging direct fire vaporizer may very well be the correct "engineering" decision for upgrading the LNG plant, other alternates to LNG, such as increasing its upstream pipeline capacity, were not identified and evaluated. In our review, we were unable to identify any economic evaluation or investment analysis models available for use by NJNG's Operations Department personnel.

As it relates to the second issue dealing with the minimal amount of documentation developed during the Company's decision and cost monitoring processes, this appears to be an employee "culture or mindset" that has not developed as the Company has evolved. When the Company was smaller, everyone, more or less, could be involved in the decision making process. Because they were involved in the decision making, the reasons for making the choices could be explained and justified verbally.

In the new environment, as the Company grows, decisions are made at lower levels in the organization. Also, changes in personnel in the utility industry have increased

significantly over the years. Individuals that participated in the decision making process may no longer be employees, having moved on to other organizations or retired. If support for particular decisions are verbal, and there is no documented supporting information, it becomes very easy to second guess the Company's decisions.

Additionally, as energy prices rise, there is growing pressure on regulators to require utilities to justify their investments. This may require defending decisions that were made years ago. NJNG has not had a rate case in 14 years. Decisions its management has made over those 14 years are now being scrutinized. Without proper documentation, it can be problematic for the Company to justify some decisions. Additionally, the lack of documentation impairs the ability of the regulators to review the prudence of the Company's decisions.

Further, the lack of a formal documented process for investment analysis and for considering alternatives can lead to poor investment decisions that adversely effect customer's rates. The Company should formalize its investment analysis process (including cost benefit analysis of investment alternatives). These steps should include providing these investment analysis tools to all "decision makers" within the gas operating departments as well as instilling a culture of making formal investment analysis, complete with documentation, a part of all projects.

III. SCOPE OF REVIEW AND EVALUATION

Q. What was the scope of your review and evaluation?

A. The overall purpose of McFadden Consulting Group's review was to evaluate the Company's management of its gas distribution and transmission infrastructure, particularly, the Company's operations functions, which include:

- engineering & planning processes;
- construction programs; and
- operations & maintenance programs.

In today's environment, GDCs are faced with increasing pressure to improve or restructure their business operations (i.e. the business side of their operations) due to the effects of deregulation, increased competition, merger and acquisition activity, eroding customer satisfaction, increasing energy costs, and pressure to increase shareholder value. In order to meet these challenges, it is necessary that GDCs optimize the efficiency of all physical assets, employees, and equipment.

In industries as capital intensive as GDCs, it is especially important to optimize physical assets, a process popularly termed "asset management." This is particularly applicable to a GDC such as NJNG, which is experiencing significant growth and is moving from being a relatively small GDC to a larger, more complex organization. Management practices that may have been acceptable in a small company are not necessarily adequate as NJNG evolves into a larger, more complex organization.

Additionally, as is true with the other GDCs in New Jersey, NJNG operates in an environment of an aging infrastructure, comparatively high labor costs, and a relatively congested locale. As a result, a significant portion of the Company's capital expenditures is designated to replace or upgrade existing facilities. The decision to

either repair or replace facilities can have a significant impact on the Company's rates.

IV. INFORMATION REVIEWED

Q. In performing your review and evaluation of the Company's management of its gas distribution and transmission infrastructure, what material or data sources did you analyze?

A. McFadden Consulting reviewed NJNG's Petition, including the testimony and exhibits filed by NJNG in support of said petition. McFadden Consulting conducted a detailed review of the testimony and exhibits submitted by the Company's operations witness, Craig L. Lynch, Vice President-Energy Delivery. We also reviewed Volume Three of the Final Public Report, Focused Audit of Affiliated Transactions and Management Audit of New Natural Gas Company, dated November 20, 2007 by The Liberty Consulting Group ("Liberty Report"). Volume Three of the Liberty Report pertained to the Management and Operations Review.

Based on our review of these documents, and our experience and expertise in gas distribution company system planning, engineering, and construction, we prepared 103 data requests seeking additional information and clarification on how NJNG manages its physical facilities. We conducted a detailed review of NJNG's responses to those data requests. Unfortunately, we are still waiting for responses to some of the discovery requests.

On April 1, 2, and 3, 2008 we conducted an on-site visit of NJNG, during which time we reviewed documents and interviewed key personnel responsible for managing the Company's physical facilities. We also interviewed an executive officer of one of the alliance contractors. We visited several construction sites, including one pertaining to the replacement of the Franklin transmission line, a major construction project discussed later in our testimony.

During the on-site, we also visited NJNG's LNG plant located in Howell Township, Monmouth County, New Jersey. Finally, we worked with the Company's planning engineers to prepare several different scenarios relating to the Franklin line upgrade. The review of this information and material provided the basis for our findings.

Q. Briefly describe the process used by the McFadden Consulting Group in assessing the Company's management of its gas distribution and transmission infrastructure.

A. After our initial review of the NJNG Petition, Mr. Lynch's Direct Testimony, and the Liberty Audit Report, we identified the projects and programs that we believed would provide a fair insight into how the Company manages its gas distribution and transportation infrastructure.

During our detailed review of responses to data requests, our on-site interviews, and our on-site field visits, we focused our attention on several primary areas of interest. These primary areas of interest included:

- Engineering and Planning

- Operations & Maintenance Practices
- The Franklin Pipeline
- Liquefied Natural Gas Plants
- "Alliance" Contractor Program
- Geographical Information System
- Capital Expenditure Approval Process.

Each of these focus areas is addressed below.

V. FOCUS AREAS

A. ENGINEERING AND PLANNING

Q. Please describe your assessment of the Company's performance in the engineering and planning functions.

A. The Company's engineering and planning personnel seem to understand the NJNG system operation and the areas in need of reinforcement. Although NJNG has not experienced any peak days with extreme temperatures since 1994, it uses a computer model that can identify the areas and the tail ends that need attention. NJNG uses the Stoner Model ("Stoner"), which is an interactive computer software commonly used within the natural gas industry to model gas delivery systems. Stoner can model a gas system comprised of many pipe segments and connecting nodes. Once the actual gas system model is developed, pressures, loads, and supply inputs can be varied at the nodes, and pipe sizes can be changed on the line segments. In addition, a new pipeline can be added to see how a system reinforcement affects the entire system model.

It appears NJNG communicates very well internally regarding general system operation, capital construction projects, and maintenance issues. This communication, however, is verbal. The Company does not have a structured process that documents justification for various projects. When a system modification is identified, there is little written evidence of who originated the proposal, what alternatives were considered, what the costs versus the economic benefits of the alternatives were, and who had final approval. In addition, it appears there are no budget constraints or priority listings for major projects, which many utility companies have incorporated into their planning and budgeting process.

Although the existing internal communication has seemed to work for this relatively small natural gas company, we believe that, as NJNG grows, a more formal, structured evaluation and approval process must be implemented. This is especially important in today's environment of costly United States Department of Transportation ("DOT") Pipeline Safety Regulations and the potential of more frequent cases where the Board of Public Utilities ("BPU") review and approval is required.

Q. From your review and observations, do you concur with the design philosophy of NJNG?

A. It is the opinion of McFadden Consulting that NJNG's overall delivery system design is conservative. By conservative we mean the tendency for a company to engineer and design facilities with a very high comfort level for system reliability, sometimes commonly referred to as "gold plated". Based on our review, it appears that NJNG

designs and builds facilities with a conservative, long range plan in mind. This is not meant to imply that their infrastructure is over-sized since there are still areas that need reinforcement in the near future. It does mean that their system is safe from an operational perspective that provides a very high level of reliability of service. There is a cost associated with this conservatism, but without written documentation, the cost cannot be determined.

An indication of NJNG's conservative approach can be found in the fact that all its transmission lines are designed as class 4 areas as defined by Part 192 of the DOT Pipeline Safety Code, when there are parts of its system that are actually classified as class 2 or 3. DOT defines the different classes as follows:

- Class 1 – Any offshore area or any Class Location Unit ("CLU")[1] that has 10 or fewer buildings intended for human occupancy.
- Class 2 – Any CLU that has more than 10 but fewer than 46 buildings intended for human occupancy.
- Class 3 – Any CLU that has more than 46 buildings intended for human occupancy. Also, an area where the pipeline lies within 100 yards of either a building or small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week in any 12-month period.

[1] A CLU is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline.

- Class 4 – Any CLU where buildings with four or more stories above ground are prevalent.

The design, construction, testing, and operational requirements for class 4 facilities are more costly than for class 2 or 3 facilities. On the other hand, if NJNG continues to experience growth in certain areas, it is possible that class 2 or 3 facilities would need to be upgraded to class 4 facilities, which can also be costly.

Another indication of its conservative approach to designing its system is that compression is not considered as a system reinforcement option. Capacity or throughput is a function of size of pipe and pressure. Compression can be used to increase capacity or throughput rather than increasing pipe size. Instead of looping a pipeline with a second large diameter pipeline, a less costly alternative might be installing a compressor on the existing line. This is a common practice within the industry. Of course, townships and municipalities might resist this proposal in populated areas, but it may be less obtrusive than pipeline construction through the middle of town. A compressor that runs only when needed in a more remote area might also be a viable option, and may reduce costs.

B. OPERATIONS & MAINTENANCE PRACTICES

Q. What were your observations as you reviewed the Company's Operation & Maintenance practices.

A. NJNG operations and maintenance seems to be handled effectively with tools such as Stoner modeling, the data loggers, gas load control utilizing SCADA, the S.O.M.E. manual, the Pipeline Integrity Management Plan, TUBIS, and other useful programs.

SCADA is the acronym for Supervisory Control and Data Acquisition, which is a computer system used by most GDCs to monitor and control the pressures in their gas system.

S.O.M.E. is the acronym for NJNG's Standards-Operating-Maintenance-Emergency Manual that contains the Company's engineering design standards, and operating procedures. This manual combines NJNG policies with DOT code requirements regarding construction, O&M, and emergency procedures.

TUBIS is a comprehensive leak management and tracking system that can be used as a tool to prioritize the repair or replacement of the Company's pipeline facilities. TUBIS is a statistical and risk assessment software package. Field data such as pipe type, pipe diameter, age, pressure, population density, leak history, soil conditions, and other pertinent factors are entered into TUBIS. Based on the input data, TUBIS predicts failure probability and deterioration rates for various facilities. It is used by engineers and operations personnel to make repair/replace decisions.

Internal communications regarding leak history records, future repaving projects, and operations personnel having the authority to make repair/replace decisions in the field also lead to the effective management of operation and maintenance of the Company's gas infrastructure.

According to its testimony, NJNG generally operates its 60 pound regulator stations in the distribution system at approximately 55 psig with tail-end limits around 10 to 15 psig. This indicates that NJNG has designed and is utilizing most of the available

capacity of its distribution system with some excess capacity for growth. On the other hand, based on information provided by NJNG, the transmission system generally has more excess capacity, which provides it with greater growth potential, except for a few areas that have been identified as needing reinforcement in the future.

Q. Does NJNG have programs in place to retire older portions of their infrastructure?

A. NJNG gave mixed signals regarding the existence of any formal programs for replacing unprotected bare steel or cast iron piping. Response to data request RCR-OPR-38 stated that there were no formal programs. Mr. Lynch's direct testimony on page 5 states, "Utilizing the planned replacement, including cathodic protection, it will take more than 13 years to remove and replace all bare steel in our system." In any event, the Company's record for significantly reducing the number of grade 2 leaks from 4,615 to less than 600 within the past 10 years is commendable.

Q. Is NJNG incorporating new technology and procedures to improve the productivity of their O & M practices?

A. NJNG claims to have made considerable investments in technology advancements to reduce and/or control costs. Again, the problem of documentation arose. Very little documentation was submitted that showed actual reductions in O&M costs. NJNG also stated that it has not reduced staffing levels because of these technology improvements. However, the Company claims the technological improvements have permitted it meet increased work loads caused by growth in customers without increasing staff. Documentation was not provided to substantiate this claim.

O&M expense has increased dramatically in recent years. According to the Petition Exhibit P-1, Schedule 6, O&M has increased by nearly 50% or $40 million in the last three years.

However, McFadden Consulting was only able to identify reasons provided by NJNG for a small portion of the increases over the 3-year period (2004 to 2007) as summarized below:

Payroll O&M (Schedule CAL-5, $20,396K to $24,992K)	$	4,596,000
Vouchers O&M (Schedule CAL-5, $7,753K to $8,478K)	$	725,000
Contractor O&M (Schedule CAL-5, $982K to $2,399K)	$	1,507,000
Stores O&M (Schedule CAL-5, $2,149K to $2,821K)	$	672,000
Meter Exchange OT O&M (RCR-OPR-10, 2-years)	$	143,000
Atm. Corrosion Program OT O&M (RCR-OPR-10, 2-years)	$	220,000
Pipeline Integrity Management Program (estm. Lynch testimony)	$	1,600,000
Total	**$**	**9,463,000**

McFadden Consulting was not able to identify reasons provided by NJNG for other increases in the level of O&M. Andrea Crane, Rate Counsel's witness responsible for addressing revenue requirements, will address the appropriate level of O&M expenditures.

C. THE FRANKLIN PIPELINE

Q. Did you review any specific capital construction projects?

A. Yes. One of the larger capital projects undertaken by NJNG in recent years is the 18-mile 20-inch Franklin transmission line. The Franklin line starts at Old Bridge Turnpike in the Township of East Brunswick and ends at the Parmly Road Station in Tinton Falls. The original 10-inch line was installed in the late 1940s and early

1950s. NJNG stated it decided to replace the line because of Federal Pipeline Integrity Management regulations ("PIM"), and because it was nearing the end of its operational life. It anticipates the final phase of this will be completed in May of 2008. The total cost of this project is estimated to be approximately $30.5 million.[2]

In its review, McFadden Consulting focused on the design assumptions for the new Franklin line. Documentation was limited, but we were most interested in determining if the pipeline was sized appropriately. NJNG stated that it analyzed the impact of 12-inch, 16-inch, and 20-inch pipe size using the Stoner model before deciding that the 20-inch pipe best suited its capacity projections. We found no documentation that other alternatives or routes were considered, or that any costs associated with alternatives, route options, or different pipe sizes were estimated.

During our on-site visit, McFadden Consulting was able to observe various Stoner model runs under different delivery pressures at Old Bridge Station for a 16-inch and a 20-inch Franklin pipeline looking toward the future years of 2010 and 2020. While these runs did not show the entire system, they did show pressure drops on the Franklin line under the different scenarios. Although no other design alternatives that might have been more cost effective than the Franklin line were identified, McFadden Consulting believes that this pipeline does provide increased gas supply diversity and greatly improves the capacity for growth in NJNG's Central Division. McFadden Consulting also believes that while the four-fold capacity increase of a 16-inch would

[2] See response to RCR-OPR-25.

have been beneficial for years to come, the six-fold increase of the 20-inch Franklin line was a good choice from an engineering and long range planning viewpoint.

If NJNG had documented its decision for a 20-inch line, several factors would have supported its decision. First, the Franklin corridor is probably a "one-shot" project because of stringent permitting requirements, the environmental issues, and the tight, restrictive rights-of-way in high traffic areas. Secondly, a case could be made that the cost difference between 16-inch and 20-inch is relatively small. A request for NJNG's estimated cost to install a 16-inch Franklin line was made during the on-site visit but has yet to be provided. Not knowing the detailed breakdown of NJNG's costs of pipe and associated materials over the last few years, McFadden Consulting cannot determine the dollar difference with any certainty since steel prices fluctuate greatly from month to month. At the time this testimony was prepared, McFadden Consulting estimated that the difference between 20-inch and 16-inch coated pipe and associated materials was roughly about $1 to $1.5 million. Contractor costs would probably be about the same. O&M costs would also be about the same. Based on the Company's filed revenue requirements and an additional $1.5 million in investment, the revenue requirement impact of constructing the 20-inch versus the 16-inch line would be approximately $217,000 annually. Because of the small difference in capital cost and in revenue requirements between the two sizes, McFadden Consulting believes the 20-inch line is arguably a prudent option from a long range planning viewpoint.

D. LIQUEFIED NATURAL GAS PLANTS

Q. Did you look at any other large capital projects?

A. Yes, we also looked at upgrades being completed at the LNG plants. NJNG is upgrading two LNG plants, which will be completed in 2008 at an estimated cost of $9.2 million. According to NJNG field personnel, these improvements should provide NJNG with the ability to respond to changes in customers' requirements more rapidly on peak days and operate its system more efficiently.[3] Various equipment enhancements have been completed, but one of the significant improvements made was the replacement of the old direct fired vaporizers with glycol shell and tube head exchangers. There should be considerable fuel gas saving with the new heat exchangers.

McFadden Consulting has little doubt that there are operational benefits from upgrading the LNG facilities. However, justifying large capital expenditures on peaking facilities that operate only sporadically during the year should be analyzed thoroughly. NJNG was unable to provide any analyses or documentation showing that it considered other alternatives that might provide similar benefits. If such alternatives were more expensive, it would have supported NJNG's decision. If such alternatives were less costly, NJNG might have taken a different approach. The lack of documentation of considering alternatives is troubling.

E. ALLIANCE CONTRACTOR PROGRAM

Q. Please describe your evaluation of NJNG's "Alliance" Contractor Program.

[3] On site interviews on April 1-3, 2008.

A. NJNG utilizes outside contractors to perform approximately 90% of its construction work. In 1997, because of increasing costs and decreasing quality, the Company initiated an internal team to review all activities associated with construction. The core idea identified by the internal team was the development of an alliance with a number of construction contractors. Under the "alliance" concept, contractors that can demonstrate the capability to adhere to standards and practices established by the Company are awarded multiyear cost-plus contracts. Contractors must also adhere to Company-monitored cost control to retain their contract. Six different performance measurement categories affect the contractors' profit percentages. After significant development work, this non-traditional method of contracting was implemented in 2001 with two contractors. As of this date, these two contractors remain as NJNG's sole Alliance Contractors. It is important to note that the work performed by the Alliance Contractors was always performed by outside contractors, not NJNG employees. The alliance simply permits NJNG to contract with the Alliance Contractors to perform the work without bidding, either on individual jobs or on multiple jobs covered by a blanket authorization.

Based on our review and assessment, it appears that the Company has taken a logical and methodical approach in implementing this program. The Company has developed an elaborate system on how the six performance measurement categories are applied to the "cost-plus" framework that is utilized in determining the contractors' profit percentages. Also, the Company utilizes company inspectors to make random checks of the contractors' quality of work.

It is important to understand, however, that the Alliance Program is a cost-plus contracting system, that the contracting crews are for the most part self-inspected, and that the Company utilizes these two contractors for the vast majority of their construction work. As such, this type of contract is always suspect for misuse and adequate monitoring, and control by the Company is mandatory.

NJNG has a number of controls in place designed to ensure that charges from the Alliance Contractors are appropriate. First, NJNG established a team comprised of NJNG operations, finance, and quality control employees and representatives of the alliance contractors. The purpose of the Alliance Team is to enhance communications between the two organizations. The Alliance Team meets once a month and addresses various issues pertaining to construction projects. It also addresses questions and issues that may arise from time to time about the relationship between NJNG and the alliance contractors.

A second control implemented by NJNG is regularly scheduled reviews of the Alliance Program by NJNG's Internal Auditing Department. In its review of Alliance Contractor Program, McFadden Consulting independently arrived at the same observations or conclusions as the internal auditor. While it appears that NJNG has taken a logical and methodical approach in developing the Alliance Program and that NJNG has adequate controls in place, there is little documentation defining the process development and the monitoring results to ensure that NJNG is obtaining competitive pricing from its Alliance Contractors and that NJNG is maintaining construction costs and quality control.

In response to this criticism, NJNG has indicated that its Energy Delivery organization utilizes different methods and information to ensure that competitive pricing is being obtained from Alliance Contractors. Such measures include benchmarking studies, bidding of large projects, and utilization of other information to rank its construction unit cost expenditures.

NJNG management has stated it believes that current approach to benchmarking alliance unit costs is appropriate and that to formalize any single methodology would limit flexibility. McFadden Consulting does not recommend any particular methodology, but rather recommends that, whatever method or methods are chosen, those methods should be documented so that there is a record of the steps taken. If a method needs to be changed or eliminated, it would still be within management's prerogative. From a broader perspective, as discussed later, McFadden Consulting also believes that management's response and reluctance to document its decisions reflects a pervasive lack of oversight of decisions in managing its assets.

F. GEOGRAPHICAL INFORMATION SYSTEM (GIS)

Q. Please describe your evaluation of NJNG's implementation of a Geographic Information System.

A. Liberty's audit report appears to raise questions about the Company's management of its implementation of the Geographic Information System ("GIS"). The audit report referred to an appraisal of the status of the project by the GIS project manager. The

audit report also indicated that the GIS is "moving too slowly,"[4] and also recommended that NJNG should put "more focus and resources on the GIS project."[5] Because of Liberty's comments, McFadden Consulting requested additional information pertaining to the GIS project. In addition, during our on-site visit, we interviewed the executive officer in charge of the GIS project and two employees who have worked on the project since its inception.

The Information Technology department ("IT") did not become involved in the project until 2003, at which time it took over management of the project. In early 2003, after issuing an RFP, NJNG retained KEMA, a consulting firm experienced in GIS, to assist it in developing a company-wide GIS program. Essentially, the consulting firm assisted NJNG in developing an implementation plan. During the interviews, NJNG indicated it was satisfied with the consulting firm's recommendations. However, it also recognized that implementing a company-wide GIS program was a costly undertaking and decided to take a deliberate, phased approach to implementing such a costly endeavor.

NJNG indicated that implementing the transmission phase of the GIS was necessary in order to facilitate implementation of the Pipeline Integrity Plan, which is mandated by DOT. It also indicated that since the Pipeline Integrity Plan was a compliance issue, there was no need for a cost-benefit analysis for the transmission portion of

[4] p. 170. Final Public Report Focused Audit of Affiliated Transactions and Management Audit of the New Jersey Natural Gas Company Volume Three: Management and Operations Review. The Liberty Consulting Group. November 20, 2007.
[5] Ibid.

GIS. The budget for the first phase, including contingencies, was $950,000. The Company has spent $767,000 to date.[6]

NJNG indicated that GIS is not required for the distribution system. However, it may be impacted by DOT regulations pertaining to the distribution integrity program, once those regulations are issued. NJNG believes that once GIS is implemented for the distribution system, system reengineering will be needed to train personnel on using it.

IT personnel indicated that it was taking a business approach to GIS for the distribution system. It stated it did not believe it was appropriate to simply implement a GIS program because it could. It indicated it needs internal partners that express a need for the system. In other words, GIS for the distribution system would be implemented if other organizations within NJNG believed it would increase efficiencies, decrease costs, or provide some other benefits that justified the investment.

McFadden Consulting believes NJNG has taken a deliberate approach to implementing its GIS program.

Q. Are your findings as they pertain to the GIS program contrary to the Liberty Report?

A. We do not believe so. Of course, the Liberty Report stands on its own. However, we re-read the Liberty Report after our interview with the GIS personnel and our review

[6] See response to data request RCR-OPR-81.

of NJNG's response to data requests on the program. The Liberty Report indicates there were delays and the project was not progressing as fast as it could. The Liberty Report did not indicate the reason for the delays. It simply indicated the project needed more resources, and it should be implemented more quickly. However, based on our interviews, NJNG apparently made a conscious decision to take a deliberate, systematic approach to implementing GIS. It did not believe it was appropriate for a company of its size to be on the leading edge of the technological advancements in this field. It decided to be a follower. It let other companies develop the technology. NJNG believes it has saved significant costs associated with the program because of its approach.

G. CAPITAL EXPENDITURE APPROVAL PROCESS

Q. Please describe your evaluation of NJNG's capital expenditure approval process.

A. As part of our evaluation, McFadden Consulting reviewed NJNG's capital approval process for major projects. For our evaluation, we defined major projects as those in excess of $500,000. While we reviewed the procedures NJNG uses to approve capital projects, our main focus was on the analysis of alternatives considered for various projects and the documentation supporting the approved projects. We were specifically interested in:

- how NJNG identifies the problems or concerns that may require a capital expenditure;
- if alternatives for addressing the problem or concerns are considered;

- if NJNG conducts an analysis of the financial impact of the alternatives, i.e, economical assessment or a cost/benefit study; and
- how NJNG documents and supports the decision to proceed with whatever alternative it believes is appropriate.

NJNG's capital budgeting procedures are contained in its Financial Procedure 132, which outlines the approval process for capital projects. Based on our review of Financial Procedure 132 and interviews during our onsite visit, McFadden Consulting would characterize NJNG's construction budget process as a "bottom up" process. It begins with an estimate of the number of customer additions, new services needed, new mains by division, conversions to natural gas, and other factors affected by growth in customers. McFadden Consulting believes a bottom up approach to capital budgeting is appropriate and did not identify any concerns with NJNG's process as outlined in Financial Procedure 132.

However, Financial Procedure 132 does not address what analyses must be conducted to justify the capital expenditure. It does not require identification of alternatives that were considered. Finally, it also does not establish what documentation must be provided in support of the expenditure.

McFadden Consulting asked numerous data requests requesting analysis of alternatives and/or copies of cost benefit studies for various projects.[7] In response to the data requests, NJNG indicated that no economic or cost/benefit studies had been

[7] See data requests and response to RCR-OPR-5, 21, 34, 48, 49, 50, 54, 68, 88, 89, & 99

completed,[8] no formal analysis of alternatives were conducted, [9] and no alternatives were considered,[10] alternatively, the Company provided an explanation of reasons for the project but did not provide the documentation requested[11]. In several instances, where NJNG did provide some supporting documentation,[12] the projects were very small[13] or did not require any capital expenditures.[14]

A review of the information supporting two major construction projects, i.e., the Franklin line and the LNG upgrade illustrates our concerns regarding consideration of alternatives and lack of supporting documentation. We asked for all alternatives NJNG considered when it evaluated the replacement of the Franklin line. Its response indicated that alternatives for the placement of the Franklin line including size of pipe and alternative routes were considered during the BPU approval process. McFadden Consulting has assisted Rate Counsel in its review of NJNG's filing for BPU approval of the final phase of the Franklin project in Docket No. GO07020142. According to NJNG response to data requests in that proceeding, it was simply "seeking BPU approval for the installation or operation of a pipeline at a maximum pressure in excess of 250 psig within 100 feet of any building intended for human occupancy."[15] In RCR-8 in Docket No. GO07020142, we asked NJNG if it had conducted any analyses of alternatives to constructing the Franklin line as proposed in that docket. Its response did not provide any studies of alternatives. It simply justified its decision

[8] RCR-OPR-5, 54
[9] RCR-OPR-21, 48
[10] RCR-OPR-49
[11] RCR-OPR-26, 50, 88, 89,
[12] RCR-OPR-34, 54, 68
[13] RCR-OPR-34
[14] RCR-OPR-34, 99
[15] See response to RCR-1, 2, 3, 4, 6, 16, 17, 20, 21, 22, 23, & 24 in Docket No. GO07020142

to construct the Franklin line as proposed. We asked for studies of alternatives in this docket in RCR-OPR-89 and received a similar response.

We asked for similar information regarding the upgrades at NJNG's LNG plants in RCR-OPR-21. Specifically, we asked if the Company had done "any recent economic studies comparing the peak shaving gas costs from these facilities versus purchased storage gas costs or other alternatives." NJNG stated, "No formal analysis comparing NJNG's LNG facilities with available contract storage or pipeline capacity has been performed…" NJNG's response then identifies several reasons why no studies were conducted.

In these two projects, which represent two of the largest capital expenditures incurred in the last couple of years, the Company only considered limited alternatives. And those alternatives were basically limited to size, location, or capacity of the facilities. For example, as discussed previously, NJNG did not consider compression as an alternative to the Franklin line. In the LNG project, it did not consider contract storage or pipeline capacity or any other alternatives.

Q. Are you suggesting that because NJNG did not consider alternatives, its decision making process is flawed?

A. McFadden Consulting believes NJNG's decision making process as it relates to approval of capital expenditures needs to be modified to include consideration of alternatives, assessment of economic impacts, and documentation supporting the decision.

In many instances, such modifications would simply be documenting information that is already considered in the decision making process. For example, in several instances NJNG indicated it had not considered alternatives. In reality, McFadden Consulting believes it is likely that alternatives were actually considered. It is likely that alternatives were considered in verbal discussions, and were discarded as inappropriate for one reason or another. The reasons for discarding the alternative may have been very sound. Unfortunately, because it was not documented, even the Company believes that no alternatives were considered.

In some instances, alternatives were considered, but no formal analyses on their impact were conducted. For larger projects, McFadden Consulting believes such analyses should be conducted and documented.

Q. Do you have a specific recommendation for the modification?

A. McFadden Consulting recommends Financial Procedure 132 be modified to require that all alternatives be identified for any non-routine capital expenditure in excess of $500,000. For each such alternative identified, an estimate of the cost of the alternative be provided. Finally, for the recommended alternative, reasons supporting the decision should be documented, including reasons why each of the other alternatives was not recommended.

VI. RECOMMENDATIONS

Q. Please summarize your recommendations regarding the Company's management of its gas distribution and transmission infrastructure.

A. As discussed previously, McFadden Consulting identified two areas of concern. The first is the Company's apparent lack of economic assessment of alternatives. The second is the minimal amount of documentation developed during the decision and cost monitoring processes. McFadden Consulting recommends that NJNG develop a more disciplined approach to documentation of the decision making process as it pertains to capital projects in excess of $500,000.

Q. Does this conclude your testimony?

A. Yes. However, we reserve the right to supplement our testimony based on outstanding responses to discovery requests and Company rebuttal testimony.