

**BEFORE THE STATE OF NEW JERSEY
OFFICE OF ADMINISTRATIVE LAW
BOARD OF PUBLIC UTILITIES**

**I/M/O THE PETITION OF PUBLIC)
SERVICE ELECTRIC AND GAS COMPANY)
FOR APPROVAL OF AN INCREASE IN GAS)
RATES, DEPRECIATION RATES FOR GAS) BPU DKT. NO. GR05100845
PROPERTY, AND FOR CHANGES IN THE) OAL DKT. NO. PUC-1747-06
TARIFF FOR GAS SERVICE, B.P.U.N.J. NO.)
13, GAS PURSUANT TO N.J.S.A. 48:2-18,)
48:2-21 AND 48:2-21.1)**

**DIRECT TESTIMONY OF MICHAEL J. MCFADDEN
AND A.E. MIDDENTS ON BEHALF OF THE
NEW JERSEY DIVISION OF THE RATEPAYER ADVOCATE**

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Filed: June 15, 2006

**Direct Testimony of
Michael J. McFadden and A. E. Middents**

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

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

5
6 My name is A. E. “Pete” Middents and I am an independent Natural Gas Industry
7 Consultant. I am currently retained as a Senior Consultant by McFadden
8 Consulting. My business address is 3 University Lane, Greenwood Village,
9 Colorado 80121.

10

11 **Q. Please provide a summary of your education and experience.**

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

13

14 **Q. What is the purpose of your panel testimony?**

15 A. The New Jersey Division of the Ratepayer Advocate (“Ratepayer Advocate”)
16 retained McFadden Consulting to review and evaluate Public Service Electric and
17 Gas Company’s (“PSE&G” or “Company”) management of its gas distribution
18 and transportation infrastructure. The overall purpose of our testimony is to
19 address this review and evaluation.

20

1 We have divided our testimony into the following sections:

2 I. Scope of Review and Evaluation

3 II. Information Reviewed

4 III. Findings and Recommendations.

5

6 **I. Scope of Review and Evaluation**

7

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

9 A. The overall purpose of our review was to evaluate the Company's management of
10 its gas distribution and transportation infrastructure. In today's environment, gas
11 distribution companies ("local distribution companies" or "LDCs") are faced with
12 increasing pressure to improve or restructure their business operations (i.e. the
13 business side of their operations) due to the effects of deregulation, increased
14 competition, merger and acquisition activity, eroding customer satisfaction,
15 increasing energy costs, and pressure to increase shareholder value. In order to
16 meet any of these challenges, it is necessary that LDCs optimize the efficiency of
17 all physical assets, employees, and equipment.

18

19 In industries that are capital intensive, such as utilities, it is especially important to
20 optimize physical assets. This is particularly applicable to an LDC such as
21 PSE&G with its aging infrastructure and comparatively high labor costs. The
22 most significant portion of the Company's capital expenditures is for replacing
23 and/or upgrading existing facilities.

1 **II. Information Reviewed**

2

3 **Q. In order to complete your analysis and evaluation of the Company’s**
4 **management of its gas distribution and transportation infrastructure, what**
5 **material did you review?**

6 A. In conducting our analysis and evaluation, McFadden Consulting reviewed the
7 original and revised prefiled direct testimony and exhibits of Mr. Peter A. Cistaro,
8 the Company’s Vice President of Gas Delivery. We also reviewed Mr. Cistaro’s
9 work papers which were used in preparing his testimony. We submitted 40 data
10 requests seeking additional information and clarification of items raised in his
11 testimony. Finally, we spent three days on-site at the Company’s headquarters
12 interviewing company personnel and reviewing confidential documents. The
13 review of this information and material provided the basis for our findings.

14

15 **III. Findings and Recommendations**

16

17 **Q. Please provide an overall summary of your findings and recommendations**
18 **regarding the Facilities Planning, Engineering & Construction functions.**

19 A. As stated earlier, in order to meet the challenges of deregulation, increased
20 competition, merger and acquisition activity, eroding customer satisfaction,
21 increasing energy costs, and pressure to increase shareholder value, it is necessary
22 that LDCs optimize the efficiency of all physical assets, employees, and
23 equipment. “Asset Management” is an evolving tool or subject that is receiving

1 increasing interest in all industry, but is particularly applicable to utilities
2 including LDCs. In industries that are capital intensive, it is especially important
3 to optimize physical assets. The discipline of Asset Management is especially
4 applicable to PSE&G with its aging infrastructure and its comparatively high
5 labor costs.

6

7 During our document review and on-site interviews, we focused our attention on
8 several projects that we believed would provide a fair insight into how the
9 Company manages the planning, engineering and construction of its facilities (i.e.
10 a portion of its “asset management” discipline). The projects included:

- 11 • Automated Meter Reading (AMR)
- 12 • Cast Iron Replacement Program
- 13 • Conrail Crown Central Pipeline Relocation
- 14 • Port Authority Dredging Relocation
- 15 • Gas Storage & Peaking Facilities
- 16 • Communications System Upgrade
- 17 • Geographical Information System (GIS)

18

19 In evaluating the Company’s management of these projects, one troublesome
20 pattern emerged relating to the Company’s apparent lack of economic assessment
21 of alternatives. Based on our review of the information provided by the
22 Company, we believe the Company lacks discipline and structure in its decision-
23 making process relating to major capital expenditures. The apparent lack of

1 documentation regarding such decisions is symptomatic of the lack of discipline
2 and structure.

3

4 The lack of a formal documented process for investment analysis and for
5 considering alternatives can lead to poor investment decisions that can adversely
6 affect customers' rates. The Company should take steps to formalize its
7 investment analysis process (including cost benefit analysis of investment
8 alternatives). These steps should include providing these investment analysis
9 tools to all "decision makers" within the gas operating departments as well as
10 instilling a culture of making formal investment analysis a part of all projects.
11 Also, the Company should consider the implementation of a formal asset
12 management program.

13

14 **Q. Please provide some examples of this deficiency in making economic**
15 **assessments of the projects reviewed.**

16 The automated meter reading ("AMR") project is probably most illustrative of the
17 lack of structure and discipline in assessing alternatives. The first study the
18 Company conducted related to both the gas and electric departments. The study
19 estimated that the necessary investment amounted to \$500 million. This is an
20 extremely large investment, yet the only documentation that existed for the
21 proposed expenditure was a summary slide presentation made to upper
22 management. Based on this presentation, the project was not approved.

23

1 The second automated meter reading analysis related to gas only service areas and
2 the project investment was approximately \$19 million utilizing mobile / drive-by
3 technology. Again, the documentation of the investment analysis was limited to a
4 slide or two contained in the power point slide presentation made to upper
5 management. This project was approved; however, the project manager was not
6 familiar with the economic analysis which was completed by an outside
7 department.

8
9 During the interviews the Company did tell us that there was an economic cost
10 benefit analysis comprised of a spreadsheet. The Company provided us with a
11 copy of the spreadsheet, but it was not the one used in making the presentation to
12 executive leadership. The Company stated that it was one that had been updated
13 subsequent to the approval process. Our reason for asking for the original cost
14 benefit analysis was to evaluate the thoroughness of the original analysis and the
15 appropriateness of the Company's documentation of its decision. McFadden
16 Consulting believes the Company's inability to provide this information is
17 indicative of the lack of structure and discipline in its capital projects approval
18 process.

19
20 Furthermore, even if this was the analysis prepared for the decision makers,
21 McFadden Consulting believes it falls short of the type of information that needs
22 to be gathered and documented for making decisions on major capital
23 expenditures.

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In every capital expenditure decision there are variables that affect the decision. The Company's spreadsheet is an attempt to measure the impact of such variables. However, this is not the only information that should be prepared and presented to the decision makers when making a major capital investment decision. The information used in the spreadsheet and the impacts the variables have on the investment decision should be identified and explained.

In the information provided to us there is no discussion relating to the spreadsheet. The variables are not identified. They are simply buried in the spread sheet that when printed is 25 pages. Of course, since the variables are not identified, there is no justification for the amounts used for the variables. Nor is there any discussion regarding the impact such variables might have on the decision.

While the Company may have discussed these items when making the decision, there is no documentation that would permit someone to determine if the decision reached is reasonable. Furthermore, there is no documentation that would permit someone to determine after the fact whether the decision was a good, bad, or indifferent. In other words, five years after the fact, was the decision a good one? Were the projections upon which the Company based its decision accurate? McFadden Consulting believes comparing actual results with projected results can help a Company improve its decision making process. Proper documentation is a necessary ingredient for making such a comparison.

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Q. Please continue with your discussion of the other projects that you reviewed.

A. The radio replacement program or the upgrade of the communication system is another project we reviewed. The Company was unable to provide McFadden Consulting with any economic analysis of this program or documentation of alternate technologies evaluated.

Likewise, the Company’s cast iron replacement policy simply is based on the number of leaks experienced for a particular segment. There does not appear to be a planned replacement program based on a formal analysis of the costs of repair versus replacement (i.e. a component of a formal “asset management” program). It is our experience that most gas distribution companies with aging piping systems currently have a formal cast iron replacement program that includes formal repair or replace analysis tools.

In response to a data request regarding the cost benefit of operating and upgrading the Company’s liquid propane air (“LPA”) and liquefied natural gas (“LNG”) peak shaving facilities, we were informed that the Company does not believe such economic analyses are necessary. During our on-site interviews, we were told that there were comparisons made to upstream pipeline company gas storage and/or transportation service. However, such comparisons were informal and undocumented.

1 **Q. Do you have any observations regarding the Company's construction costs in**
2 **comparison to other companies?**

3 A. Yes, the Company participates in a national panel of utility companies which
4 annually produces a Utility Peer Panel Study. This study shows that PSE&G's
5 construction costs are significantly higher than those of other gas distribution
6 companies participating in the study. PSE&G's costs of installing one foot of gas
7 main are two and one half to three times higher than its peer companies as shown
8 in Exhibit No. _____ (M&M-1).

9

10 **Q. Can you explain this discrepancy in construction costs?**

11 A. During the interviews, we discussed the high construction costs with the Company
12 personnel. They recognized that their construction costs were high in comparison
13 to the peer companies. However, they did not offer any concrete reasons for the
14 high construction costs. We subsequently submitted a data request specifically
15 asking if the Company had completed any analysis which would explain the
16 reasons why its construction costs are significantly higher than the peer
17 companies. We expect the response to our data request will be provided after the
18 due date for this testimony. Therefore, we reserve the right to supplement this
19 testimony once we have a chance to review it.

20

21 One might expect that PSE&G's costs might be higher because of higher than
22 average labor costs, age of its system, its location in inner city neighborhoods and
23 similar reasons. However, these factors should also be reflected in its O&M costs.

1 The reality is that the Company's O&M costs are much more reasonable when
2 compared to the peer company. Exhibit No. _____ (M&M-2) contains a
3 comparison of various O&M cost measures for 2004. In two of the measures,
4 PSE&G is better than the median and compares very favorably with companies in
5 the first quartile. In the third measure the Company is higher than the median, but
6 an amount significantly below the 2 ½ to 3 times higher they have in construction
7 costs.

8

9 **Q. Were you able to identify any reasons that PSE&G's constructions costs are**
10 **so much higher than the peer companies?**

11 A. Construction costs are driven by three factors: direct material, labor and
12 overheads. Direct material refers to physical items used in the construction
13 process, such as pipe and welding supplies. Labor refers to the cost of labor
14 associated with installing the direct materials. The cost of labor is driven by the
15 number of employees, the hours they work, and their hourly wage. Overhead
16 refers to items that are not directly related to an individual project but are items
17 that should be allocated to it. Overhead includes such items as the cost of
18 supervision, material handling, insurance, rents, accounting, and other costs
19 incurred in construction but not specifically related to an individual construction
20 project.

21

22 The cost of individual materials for capital and O&M projects should be similar,
23 if not identical. Of course, there could be a difference in the type and amount of

1 materials. A capital project might use 10 miles of a 6-inch pipe while an O&M
2 project uses only 600 feet. But this would also be the case with the peer
3 companies and would not explain PSE&G's significantly higher cost of
4 construction compared to its more reasonable cost for O&M projects.

5
6 Corporate overheads are allocated to both capital projects and to O&M projects.
7 During the on-site interview, we requested that the Company provide the
8 overhead application rates and the documentation supporting their calculations.
9 The Company did provide the overhead rates. However, we did not receive the
10 supporting documentation. We served an additional data request asking for the
11 supporting documentation. However, the response is not due until after this
12 testimony is due. Once we receive the response we will evaluate the
13 reasonableness of the overhead rates.

14
15 Labor is the third factor driving the construction costs associated with capital
16 projects and with O&M projects. As stated previously, the cost of labor is driven
17 by the number of employees, the hours they work, and their hourly wage. Starting
18 with the hourly wage, McFadden Consulting believes the hourly wages for capital
19 projects and for O&M projects would be similar because the union contract would
20 govern both. Therefore, we do not believe this would explain the difference
21 between costs associated with capital projects versus the cost associated with
22 O&M projects.

23

1 The Company's overtime rate is one measure of the number of hours the
2 employees work and the Company's overtime rate does appear high. In 2004, the
3 Company's overtime rate was 25.2%. In 2003, it was 18.2% and in 2002 it was
4 22.8%. Such a high overtime percentage could contribute to the high construction
5 costs. Again, however, one would expect that if overtime is required for capital
6 projects it would also be used for O&M activities. On the other hand, if capital
7 projects were responsible for the majority of the overtime and there was minimal
8 overtime associated with O&M projects, it could help explain the difference. It
9 also would raise a question as to the Company's workforce utilization.

10

11 One item that could drive construction costs higher but not affect O&M costs
12 would be the amount of labor used to complete a job. Assuming material costs,
13 overhead costs, hourly labor rates, and level of overtime are similar for both
14 capital projects and O&M projects, it is possible that the Company uses more
15 labor hours for capital projects and less labor hours for O&M projects. This
16 might explain why the Company's cost of construction is significantly higher for
17 capital projects than it is for O&M projects in comparison to its peer companies.
18 However, we believe this is counter intuitive because O&M projects are generally
19 more complex than new construction. O&M projects are generally related to
20 existing facilities and require careful excavation including street cuts. They also
21 can require working with older pipe in cramped circumstances. New construction
22 projects may be in new subdivisions in which small diameter gas mains are

1 installed in streets prior to them being paved and gas services are installed prior to
2 customer landscaping.

3

4 **Q. Would there be any reason for the Company to assign more personnel than**
5 **necessary to a capital project?**

6 A. There may be a financial benefit to the Company of assigning more personnel to a
7 capital project during specific time periods. Labor costs associated with capital
8 projects are capitalized and included in rate base, assuming the Board of Public
9 Utilities approves them in a subsequent rate case. Therefore the labor costs
10 associated with capital projects will be recovered in the future and they will also
11 increase the Company's rate base which will increase its earnings.

12

13 On the other hand, labor associated with O&M projects are expensed in the year
14 they are incurred. O&M labor costs increase expenses and reduce net income
15 during that year.

16

17 From a cynical perspective, it would be in the Company's financial interests to
18 shift labor costs to capital projects in the time period between rate cases. This
19 would decrease the Company's O&M labor costs and increase its net income.

20 During periods in which the Company intends to file a rate case, it would be in the
21 Company's financial interest to shift these labor costs from capital projects to
22 O&M projects. This would increase the expenses and decrease net income during
23 the test period on which the new rates are based.

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Q. Do you have any evidence that the Company is inappropriately shifting labor costs from O&M projects to capital projects or vice versa for their financial benefit?

A. No. Our discussion is purely speculative. The point of our discussion is that because of the tight time period associated with a rate case proceeding we were not able to identify why the Company’s cost of constructing one mile of new main is so significantly greater than its peer companies, while its O&M costs using several measures are much more reasonable. Furthermore, the Company was not able to provide us with any explanation for these differences.

Q. Do you have any findings and recommendations in this area?

A. McFadden Consulting believes that the Company has failed to meet its burden of proof that its construction costs are just and reasonable. The significant difference in the cost of construction versus its O&M costs in comparison to its peer companies casts doubt on the reasonableness of the cost of its capital projects and the amounts included in rate base.

Analyzing why the Company’s construction costs are higher than the peer group, yet their O&M costs are more reasonable, will require an in-depth analysis that McFadden Consulting believes could not be completed within the statutory time limits required to issue a decision in this proceeding. Rather than withhold approval of the Company’s rates, McFadden Consulting recommends the Board

1 approve the rates, as they might otherwise be modified based the Board's rulings
2 on other issues. Such approval would be preliminary in nature and would be
3 subject to a Phase II proceeding to review the company's construction cost.
4 Initially, the Company should prepare a detailed analysis of why its construction
5 costs are significantly higher than those of its peer companies. Such detailed
6 analysis should include an analysis and comparison of the cost of materials, labor
7 and overheads used in the Company's capital and O&M projects. Additionally, as
8 part of their analysis, the Company should review the peer companies' costs to
9 determine if the difference is due to different reporting methodologies among the
10 peer companies.

11
12 Once completed, the Company's analysis and all materials reviewed by the
13 Company should be filed with the Board and provided to the other parties in this
14 case. The amount of time required to conduct the analysis should be limited to no
15 more than 120 days.

16
17 The other parties should have a reasonable amount of time to review the
18 Company's analysis, conduct any needed discovery, and perform any additional
19 analysis it deems necessary. Thereafter, any party should be permitted to request a
20 hearing on the Company's analysis and recommend disallowance of all or a
21 portion of the capital expenditures as it believes appropriate.

22
23

1 **Q.** Does this conclude your testimony?

2 **A.** Yes.

Division of Ratepayer Advocate
Cost per Foot of New Installed Main

(a) Line No.	(b) Year	(c) First Quartile	(d) Median	(e) PSE&G	(f) Line No.
1	2004	\$ 6.79	\$ 8.61	\$ 20.19	1
2	2003	\$ 5.69	\$ 8.30	\$ 20.17	2
3	2002	\$ 5.65	\$ 6.80	\$ 14.01	3

Division of Ratepayer Advocate
O&M Cost Comparison for 2004

(a) Line No.	(b) Year	(c) First Quartile	(d) Median	(e) PSE&G	(f) Line No.
1	O&M Cost per Main Leak Repair	\$ 1,065.78	\$ 1,461.96	\$ 1,076.39	1
2	O&M Cost per Customer	\$ 22.63	\$ 30.84	\$ 23.14	2
3	O&M Cost per Miles of Mains & Service	\$ 790.85	\$ 1,087.09	\$ 1,204.36	3

MICHAEL J. MCFADDEN

AREAS OF QUALIFICATION

Rates, regulatory affairs, strategic planning, gas and electric utility operations, corporate finance, financial analysis, asset valuation, fuel supply planning and procurement, accounting, and budgeting.

EMPLOYMENT HISTORY

- President, McFadden Consulting Group, Inc., 1995-present
- Chairman, Colorado Low-Income Energy Assistance Commission, appointed as member by Governor Owens 2002. Elected Chairman 2005
- Board of Directors, Energy Outreach Colorado, formerly the Colorado Energy Assistance Foundation, 2003-present
- University of Phoenix, Colorado Division, Faculty Member, 1982-present, Finance Area Chair, 1992-1993, Accounting Area Chair, 2000-2004
- Board of Advisors, Full Power Corporation, Los Angeles, CA, 1998-2000
- Senior Advisor, Hagler Bailly Consulting, Inc., Boulder, CO, 1995-2000
- Metropolitan State College, Denver, CO, Adjunct Faculty Member, 1989-1995
- Principal, Hagler Bailly Consulting, Inc., Boulder, CO, 1993-1995
- Vice President, Treasurer, Secretary and Member of the Board of Directors, WestGas Gathering, Inc., WestGas InterState, Inc., WestGas TransColorado, Inc., 1989-1993
- Manager, Financial Services and Administration, Assistant Treasurer and Assistant Secretary, Western Gas Supply Company, 1989-1993
- Staff Assistant to Senior Vice President, Finance and Chief Financial Officer, Public Service Company of Colorado, 1986-1989
- Director, Rate Regulatory Services Department, Public Service Company of Colorado, 1974-1986
- Regis University, Adjunct Faculty Member, 1981-1982

EDUCATION

- University of Denver, MBA, Business Administration, 1973
- Regis University, BS, Business Administration, 1972

PROFESSIONAL EXPERIENCE

Michael J. McFadden is a rate, regulatory affairs, finance, strategic planning, and utility operations expert with 32 years experience in the natural gas and electric utility industries. He has appeared as an expert witness and provided testimony in numerous hearing before the Federal Energy Regulatory Commission (FERC), regulatory Commissions in Arkansas, Colorado, Georgia, Kansas, Ohio, Wyoming, Utah and British Columbia, and the United States District Court. He has also filed testimony in Montana and Ontario. Mr. McFadden

headed a combination gas, electric, and steam heat utility company's rate regulatory services department where he was responsible for various submittals to regulatory agencies that had jurisdiction over the company's rates, facilities and services. In addition, he previously served as chief financial officer for a natural transmission, gas gathering, and processing company where he was responsible for rate and regulatory affairs, financial and managerial accounting, financial policy and planning, business opportunity and financial analysis, strategic planning, and information and computer administration. He has participated in numerous rate cases and regulatory proceedings and has been involved in such issues as Order 636 restructuring strategies, customer choice programs, development of gas transportation tariffs, practices and procedures, development and implementation of gas purchasing strategies, development of avoided costs, mains extensions policies and producer take or pay issues. On the electric side of the business, he has dealt with such issues as the utilization of purchased power, economic dispatching of generating stations, coal inventory measurement and management, generating station performance measures, incentive cost recovery mechanisms for a nuclear generating plant, generating plant maintenance schedules and management, unit coal train economics and management, and the development and administration of electric cost adjustment mechanisms. Mr. McFadden was also on the advisory board of Full Power Corporation, an electric marketing company serving the California markets. He previously served as the accounting area chair and the finance area chair for the University of Phoenix, Colorado Division. Mr. McFadden is the Chairman of the Colorado Low-Income Energy Assistance Commission and has been a member since his appointment by Governor Bill Owens in 2002. He is also a member of the Board of Directors for Energy Outreach Colorado, formerly known as the Colorado Energy Assistance Foundation.

PROFESSIONAL AFFILIATIONS

- Board of Directors, Energy Outreach Colorado
- Chairman, Colorado Commission on Low Income Energy Assistance
- Rocky Mountain Natural Gas Association
- Colorado Association of Commerce and Industry, 50 For Colorado
- American Gas Association, former member
- Interstate Natural Gas Association of America, former member of Rate and Policy Committee
- Regis University Alumni Association
- Former Member, Regis University Business and Industry Group
- University of Denver Alumni Association
- Listed in *Who's Who in America*, *Who's Who in Executives and Professionals*, *The National Registry of Who's Who*, and *Who's Who International*

A. E. MIDDENTS

AREAS OF QUALIFICATION

Gas operations, gas industry restructuring, supply planning and procurement, regulatory matters, engineering, marketing, transportation, business development, and strategic planning.

EMPLOYMENT HISTORY

- Senior Consultant, McFadden Consulting Group, Inc., Denver, CO, 1996-present
- Independent Natural Gas Industry Consultant, Greenwood Village, CO, 1996-present
- Vice President, Technical Services, Northern Pipeline Construction Company, 1995-1996
- Independent Consultant, 1993-1995
- Senior Vice President, Public Service Company of Colorado, 1988-1993
- Vice President Gas Operations, Public Service Company of Colorado, 1986-1988
- Manager, Engineer and Construction, Western Gas Supply Company, 1983-1986
- Engineering Manager, Western Gas Supply Company, 1981-1983
- Assistant to the President, Fuelco, 1981-1983
- Assistant to the Vice President Gas Operations, Public Service Company of Colorado, 1980-1981
- Gas Distribution Operations Manager, Public Service Company of Colorado, 1976-1980
- Superintendent of Gas Utilization, Public Service Company of Colorado, 1976
- Superintendent, Division Gas Distribution, Public Service Company of Colorado, 1972-1976
- Superintendent, Planning and Analysis, Public Service Company of Colorado, 1970-1972
- Supervisor, System Planning, Public Service Company of Colorado, 1966-1970
- Various positions, Public Service Company of Colorado, 1960-1966

EDUCATION

- Iowa State University, BS, Industrial Engineering
- University of Colorado, Business Courses
- University of Colorado, Executive Education Program for the Gas Industry
- University of Michigan, Public Utility Executive Program

PROFESSIONAL EXPERIENCE

A. E. "Pete" Middents has 45 years of broad experience in all segments of the natural gas industry. This includes the entire spectrum of technical and economic issues associated with the utilization of natural gas, including engineering and construction, gas supply, gas contracts, transmission and distribution, storage, compression, processing, economic feasibility, regulatory issues, long-range planning, and operations issues.

Mr. Middents was previously employed by Northern Pipeline Construction Company as Vice President, Technical Services. NPL is headquartered in Phoenix, Arizona and was acquired by Southwest Gas Corporation, headquartered in Las Vegas, Nevada in 1996. He was responsible

for the overall management of Northern's Technical Services Division as well as marketing and new product development.

Mr. Middents was an independent consultant specializing in the natural gas industry from 1993 to 1995. His consulting assignments have primarily been in the areas of new business development, gas industry restructuring, economic feasibility and evaluation, overall planning and engineering design (pipeline processing and distribution), and natural gas marketing. Recent clients include:

- Questar Pipeline Corporation, Salt Lake City, UT
- Northern Pipeline Construction Company, Phoenix, AZ
- K & M Engineering and Consulting Corp., Washington, D.C.
- Premier Enterprises, Inc., Englewood, CO
- U.S. Agency for International Development (U.S. State Department), Washington, D.C. and Montevideo, Uruguay
- Benjamin Schlesinger and Associates, Bethesda, Maryland
- Minister of Industry, Energy and Minerals, Government of Uruguay, Montevideo, Uruguay

In 1993 he exercised an early retirement option from Public Service Company of Colorado. As Senior Vice President of Gas Operations for Public Service Company (a combination gas and electric utility serving the majority of the state of Colorado), Mr. Middents had full executive responsibility for the Company's natural gas operations. He was also President and a Director of Western Gas Supply Company (WestGas, a gas gathering, processing, and transmission subsidiary company), President and a Director of Fuel Resources Development Company (Fuelco, a gas and oil exploration and production subsidiary company), Chairman and a Director of Natural Fuels Corporation (a full service natural gas vehicle subsidiary company), and Vice President and a Director of Cheyenne Light, Fuel and Power Company (a combination gas and electric utility serving a portion of Wyoming). Mr. Middents also served as chairman and director of the following companies: WestGas Interstate Gas Company, WestGas Gathering, Inc. and WestGas TransColorado, Inc.

Mr. Middents joined the Public Service Company in 1960 as a gas engineer. He held numerous management positions with WestGas and Public Service Company prior to his election as Vice President in 1986. He was promoted to Senior Vice President in 1988.

PROFESSIONAL AFFILIATIONS

- Past Chairman of the Board, Midwest Gas Association
- American Gas Association
- Board of Directors, Interstate Natural Gas Association of America
- Industrial Technical Advisory Committee, Gas Research Institute
- Board of Directors, Natural Gas Vehicle Coalition
- Past President and Director, Rocky Mountain Gas Association