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1996-98 PERFORMANCE BENCHMARKS FOR NATURAL GAS UTILITIES

I. EXECUTIVE SUMMARY

Summary data of gas utility financial profiles and performance appear in this Energy Analysis. The intent is to provide industry participants and observers with relative measures of financial returns and operational efficiencies of natural gas distributors. For this study, the American Gas Association (A.G.A.) collected data from its member companies. The data source for these benchmarking metrics is the Uniform Statistical Report (USR), which is administered annually by A.G.A. on behalf of its member companies. Results are presented for the years 1996 through 1998. Additional information, including company specific information, is included in an attachment to this analysis and available only to A.G.A. member companies.

For study purposes, the gas utility industry is segmented into distinct groups: investor-owned gas-only utilities, investor-owned combination gas and electric utilities, and municipally owned gas utilities. Summary results are segmented in this sample accordingly. Comprehensive details are provided in the appendices.

From 1996 through 1998, gas utilities were challenged by a number of factors beyond their control.

- Total therms delivered fell 15 percent over the three years, due to warmer than normal weather for two of the three years and customer conservation.
- Gas purchase expenses increased 10 percent from 1996 to 1998 due to a similar rise in wellhead prices.

Gas utilities compensated for these factors, which helped to minimize their impact on customers and investors.

- Despite declining sales, natural gas revenues rose 8 percent from 1996 to 1998 due to automatic pass-through of rising gas costs.
- Customer/employee ratio increased 13 percent from 1996.
- Return on assets, fell to 3.4 percent in 1998, compared to 4.2 percent in 1996.

The following summarizes the characteristics that distinguish each industry segment from the others based on the 76 companies in the sample. Each comment includes reference to the figures and data tables that follow in the text.

Gas-Only Utilities

- Have the largest revenue when measured either in absolute values, or per therm delivered (Table 2).
- Posted the fastest revenue growth in both 1996 and 1997 (Table 2).
- Achieved a ROA of 4.2 percent in 1996, falling to 3.4 percent in 1998 (Table 6).
- Have decreased their long-term debt as a percent of total capitalization from 46.2 percent in 1996 to 44.7 percent in 1998 (Table 5).

Combination Gas & Electric Utilities

- Have the lowest O&M cost per therm delivered of all of the sectors studied (Table 3).
- Achieved a ROA of 4.3 percent in 1996, which fell to 3.6 percent in 1998 (Table 6).
- Have increased their debt financing to 49.2 percent of total capitalization in 1998, up from 44.3 percent in 1996 (Table 5).

Municipal Gas Utilities

- Have increased their long-term debt financing to 38.6 percent of total capitalization in 1998 up from 34.6 percent in 1996 (Table 5).
- Achieved a ROA of 3.5 percent in 1996, which has fallen to 3.3 percent in 1998 (Table 6).

II. BACKGROUND

THE NATURAL GAS DISTRIBUTION INDUSTRY. Approximately 1,100 utilities distribute natural gas to end-use consumers in the U.S. For this analysis, a total of 76 companies were studied for 1998, 73 firms were included in the 1997 sample and the 1996 sample comprised 82 firms.¹ They are located across the continental U.S., and each company has a unique combination of scale, load profile, and climatic attributes. In aggregate, the firms included in this study accounted for 34 percent of natural gas consumed in both 1998 and 1997 and 43 percent of 1996 use.² *Given this sample size, any inferences about the sample's depiction of the entire industry are accordingly limited.*

During the past two years, there has been considerable consolidation in the natural gas industry. This is evidenced by the fact that the *Brown's Directory* is reporting 600 fewer entities in 2000 compared to 1998. This can be attributed to a wave of mergers and acquisitions activity in the energy sector throughout 1998. During 1998, there were 437 deals announced for a total value of nearly \$187 billion. While in terms of dollar value there was a slowing of activity in 1999 (\$71 billion), an additional 324 transactions were announced.³

¹ This set number was determined after eliminating member companies for whom data was either incomplete or not provided at all. Firms with zero net income are excluded from the analysis. This is not a scientific sample in that sample stratification by segment type does not reflect population stratification. See Appendix 9 for list of companies included.

² Natural gas distributed for end-use consumption totaled 20.0 Tcf in 1996, 20.0 Tcf in 1997 and 19.5 Tcf in 1998. U.S. Department of Energy / Energy Information Administration, *Natural Gas Monthly*, January 2000, Table 3.

³ *CommScan Monthly NewsSheet*, January 2000.

Many A.G.A. member companies are gas-only investor-owned utilities, as are the majority of the companies in this analysis. These companies earn returns that accrue to their investors. State-level public utility commissions regulate much of their operations, finance, and capital investment activities.

Combination utilities have the franchise rights to transport and sell both gas and electric power commodities. These are also investor-owned firms with financial obligations to shareholders. Like the gas-only investor-owned firms, these companies are subject to various state and federal regulations.

Municipal utilities are publicly owned by the citizens of the jurisdictions that the utilities serve. Local governments enjoy tax-free bond-issuing capabilities, usually at interest rates lower than can be obtained by investor-owned utilities. Ultimately, such debt is usually collateralized by these utilities' abilities to secure tax revenue to back up debt commitments. What an investor-owned utility would pay out in dividends accrues instead to the municipal company's citizen-shareholders in the form of lower rates. Municipal utility regulation is performed primarily by local governments as opposed to state-level commissions.⁴

DESCRIPTION OF DATA SOURCES. Financial data about A.G.A. member companies are drawn from the Uniform Statistical Report (USR). Member company staff prepare these standardized forms annually for collection by A.G.A., but companies may choose to withhold any or all of the requested data. Some of the USR duplicates the information found in audited end-of-year financial statements, but the USR requests additional information, such as heating degree-day profiles, miles of pipe in service, type of sales by customer class, number of customers served, and various employment profile statistics.

DATA LIMITATIONS. Since the data used for this analysis are annual figures only, a few inferential limitations should be noted. First, a single year's data for gas distribution operations are influenced by weather patterns for that year. For the U.S. as a whole, 1998 was 13.7 percent warmer than normal, 1997 was 0.7 percent warmer than normal, 1996 was 3.0 percent colder than usual.⁵ The deviation between actual HDDs vs. historic normals will vary by location, but this national statistic suggests, on average, that slightly more gas volumes were sold during 1996, while one would expect lower gas sales during 1997 and 1998. This in turn suggests that utility benchmarks may slightly overstate or understate overall utility financial performance or efficiency of operations when impacted by weather.

Another limitation is that the ability to perform trend analysis is somewhat limited. While three years worth of data are presented here, comparison of actual values (total revenues for example) from year to year can be distorted by changes in sample size. Also, variances in weather can affect these trends. Finally, the data set is limited to three years and this limits the ability to compare longer-term trends.

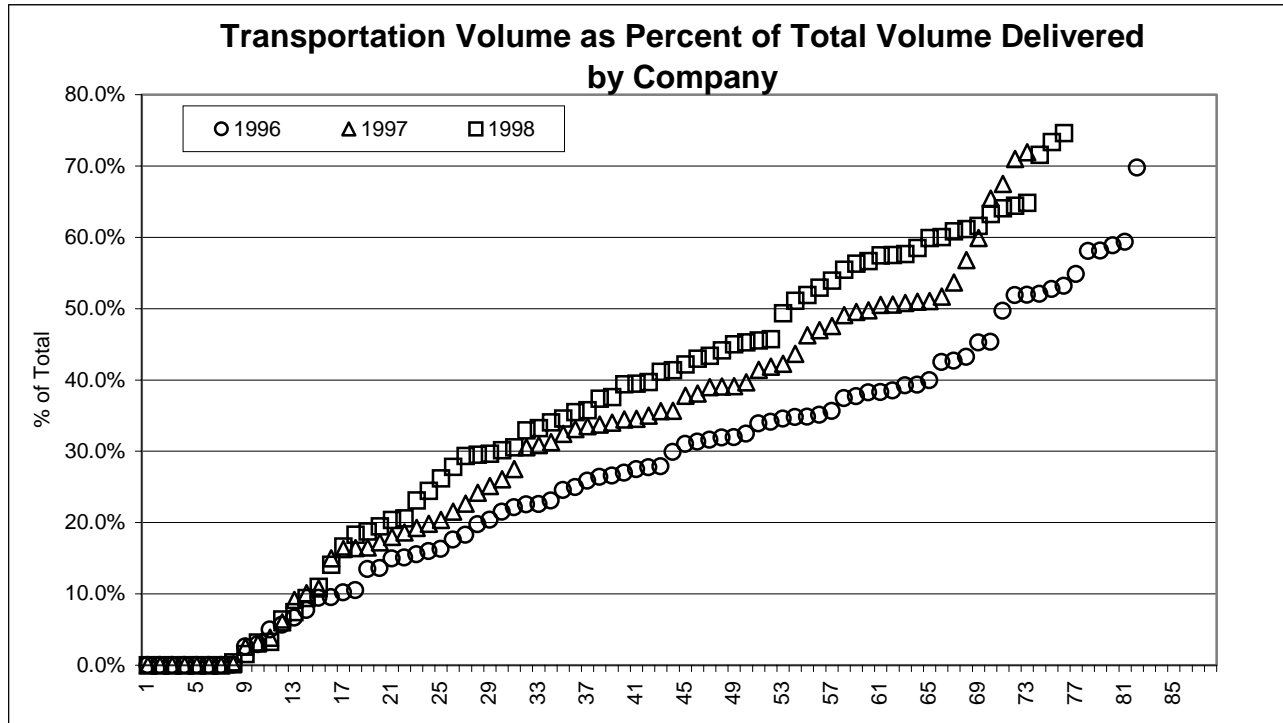
Sample size must also be considered as a potential limitation. The industry segment sample sizes used in this study are not consistently proportional to their respective populations. Additionally, the sample size—measured both in number of companies, and more importantly as percentage of total gas deliveries—has declined over time. This makes annual comparisons of absolute values, such as total number of therms sold, meaningless. However, the purpose of ratio analysis is to address this problem and facilitates annual comparisons.

⁴ Note that relatively few financial profiles were available for the municipal segment. The operations data used here considers only gas activities. The financial profiles of gas-only and combination municipal utilities are blended together for summary purposes.

⁵ The national average heating degree-day (HDD) total, weighted by population were 3,951 in 1998, 4,542 in 1997 and 4,713 in 1996 compared to a 30-year average of 4,576 for the 1961-90 time period. Source: A.G.A. *Gas Facts*, Table 10-6.

One final consideration that must be considered is the increased prevalence of transportation services to gas utilities. In 1998, transportation customers represented only two percent of total customers, yet these customers accounted for over 43 percent of total gas delivered. Figure 1 illustrates the increased role of natural gas transportation.

FIGURE 1



III. BENCHMARKING METRICS

Benchmarking metrics created for this study take several forms. Typical accounting ratios based on income statements and balance sheets serve as financial performance indicators. Financial statements are also recast in “same-size” formats, which present line items in percentage terms. Other benchmarks describe numbers of employees, meters, and volumes of gas throughput. All AGA data are summarized so that no individual company statistics are revealed. Additionally, summaries are created which divide the industry into type-of-company segments. These include gas utilities, combination gas & electric utilities, and municipally owned gas utilities.⁶ Appendix 2 is a series of charts that display the range of observations for selected benchmarking metrics. Appendix 9 shows the list of companies that were included in this analysis.

- *Utility Operating Profiles - Absolute Values (Section IV-A and Appendix 3a).* System profiles are summarized here by type of company. This data includes information on gas volumes delivered as well as the number of customers by class.
- *Financial Statements - Absolute Values (Section IV-B and Appendix 3b).* Income statement and balance sheet data are summarized here by type of company.⁷ Income statement amounts are expressed in absolute dollars in Appendix 3b. Note that these items represent gas operations only.

⁶ See *Glossary* in Appendix 1 for a definition of these categories.

⁷ Appendix 3a financial statements are in thousands of dollars.

- *Financial Statements - Same-Size Analysis (Appendix 3c)*. The financial statement data shown in absolute values are re-cast in percentage terms for a same-size analysis. Income statement line items are in percentages relative to operating revenue while balance sheet items are expressed as a percentage of total assets. This shows the disposition of a firm's revenue and composition of its asset base without respect to the size of an individual firm.
- *Financial Statements - Per Cost Driver (Section IV-B and Appendix 3d)*. Income statements are shown in several formats: per therm delivered, per customer served, per dollar value of gas plant in service, and per mile of main and service pipe in operation.
- *Financial Ratios (Section IV-D and Appendix 3e)*. These are conventional financial analysis tools, and they compare a company's financial status to other firms or types of firms. Ratios are calculated from group totals or weighted averages (explanations are provided in the Glossary, Appendix 1).
- *O&M Detail Analysis (Section IV-C and Appendix 4)*. These cost elements represent major gas delivery activities, starting with purchase or production and continuing sequentially through transmission, distribution, customer service, sales activities, and administrative and general (A&G) accounting. These results are also arrayed by type of company. Benchmarks for these data are created by expressing each line item on a basis of annual costs per therm delivered. See Table 3 for more detail.
- *Debt Analysis - Ratios (Section IV-E)*. Data are presented to highlight various measures of debt. These include debt as a percent of capitalization and interest coverage ratios. The data in this section necessarily include both gas and electric and electric operations.
- *Wages and benefits: Ratios and Same-Size Analysis (Section IV-G and Appendix 5)*. Data about utility employment and benefits profiles are included. These measures are intended to illustrate the norms for staffing levels and expenses as they vary by type of firm. Benchmark measures include:
 - ▶▶ Total compensation as a percentage of total O&M costs
 - ▶▶ O&M wages per employee (employees on payroll at year's end)
 - ▶▶ Total benefits and pensions per employee
 - ▶▶ Ratio of total benefits to total compensation
 - ▶▶ Annual therm throughput per employee
 - ▶▶ Average annual customers served per employee
- *Profitability (Section IV-F and Appendix 6)*. Profitability is expressed here in terms of return on assets as well as return on common equity. Since ROA measures the returns attributable to operations (prior to finance costs), ROA is used to describe the relative economic efficiency of natural gas distribution by industry segment. This section will examine selected cost drivers-- numbers of therms sold, of customers served, dollars of gas plant utilized, and miles of pipe in service-- to evaluate each in terms of its impact on ROA. Additionally, return on equity indicates the rate of return that a firm earns on its equity base. This section will present ROE for each of the various segments, as well as decompose this measure to gain a better understanding as to what is driving changes in ROE. See Table 6 for more detail.

IV. BENCHMARK DISCUSSION

IV-A. OVERVIEW

Benchmark summaries are presented here in order of accounting process: revenues are discussed first, followed by O&M costs, operating income, debt management, capitalized income values, and profitability. Finally, wage and benefit profiles are discussed. Table 1 summarizes the scope and scale of the companies studied. It is important to emphasize that the following data are meant to illustrate the typical company studied in this sample and absolute values should not be extrapolated to the industry as whole. This is especially true of the average number of customers.

While Table 1 on implies a decline in customers for gas utilities from 1996 to 1998, in fact the actual number of customers has grown over this period. The decline reflects a change in sample composition, not a decline in the number of customers served by gas utilities. When comparing year to year changes for companies that have reported in all three years, we find that the average number of gas utility customers served grew 1.9 percent in 1998 and 1.8 percent in 1997. During the same time period, combination utility customers grew by 1.8 percent and 1.5 percent during 1998 and 1997 respectively. Figure 2 shows the average number of natural gas customers by company for those that reported in all of the three years studied.

FIGURE 2

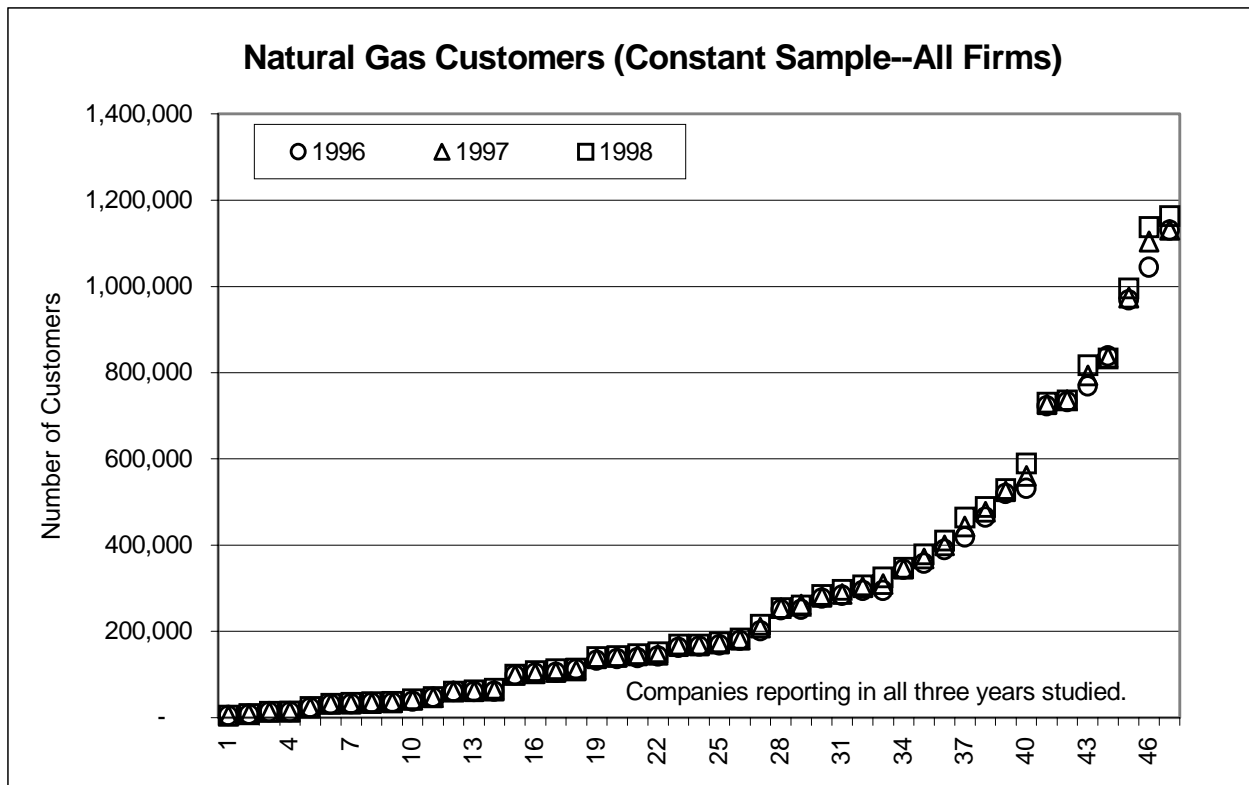


TABLE 1

UTILITY PROFILES

**STATISTICAL SUMMARY, BY INDUSTRY SEGMENT
DATA BASED ON SEGMENT AVERAGES**

	1996	1997	1998
All Companies	82 Firms	72 Firms	76 Firms
No. of gas customers	470,899	430,152	427,473
Annual therms delivered ('000)	1,067,510	953,790	903,947
Annual therms delivered per account	2,267	2,217	2,115
Therms delivered per \$1000 of gas plant	1,334	1,248	1,187
Density of system ²	40.8	37.7	37.7
Firm sales ³	90.4%	90.2%	91.7%
Gas utilities	50 Firms	50 Firms	54 Firms
No. of gas customers	498,427	481,922	500,348
Annual therms delivered ('000)	1,155,583	1,037,539	1,037,822
Annual therms delivered per account	2,318	2,153	2,074
Therms delivered per \$1000 of gas plant	1,307	1,191	1,144
Density of system ²	39.5	37.3	37.8
Firm sales ³	91.7%	93.1%	92.8%
Comb. Gas & Electric Utilities¹	25 Firms	14 Firms	12 Firms
No. of gas customers	510,124	418,001	359,382
Annual therms delivered ('000)	1,104,704	1,053,852	877,402
Annual therms delivered per account	2,166	2,521	2,441
Therms delivered per \$1000 of gas plant	1,385	1,447	1,445
Density of system ²	44.5	39.8	38.4
Firm sales ³	87.7%	82.1%	87.4%
Municipal Utilities	7 Firms	8 Firms	10 Firms
No. of gas customers	134,172	129,376	115,655
Annual therms delivered ('000)	305,579	242,744	212,878
Annual therms delivered per account	2,278	1,876	1,841
Therms delivered per \$1000 of gas plant	1,467	1,497	1,321
Density of system ²	32.1	33.6	32.6
Firm sales ³	87.7%	82.2%	84.2%

Source: A.G.A., USR.

¹ Figures for gas operations only.

² "Density" refers to the number of customers per mile of pipe (mains and services combined) in service.

³ Expressed as a percentage of total annual therm volume delivered.

IV-B. REVENUE PERFORMANCE

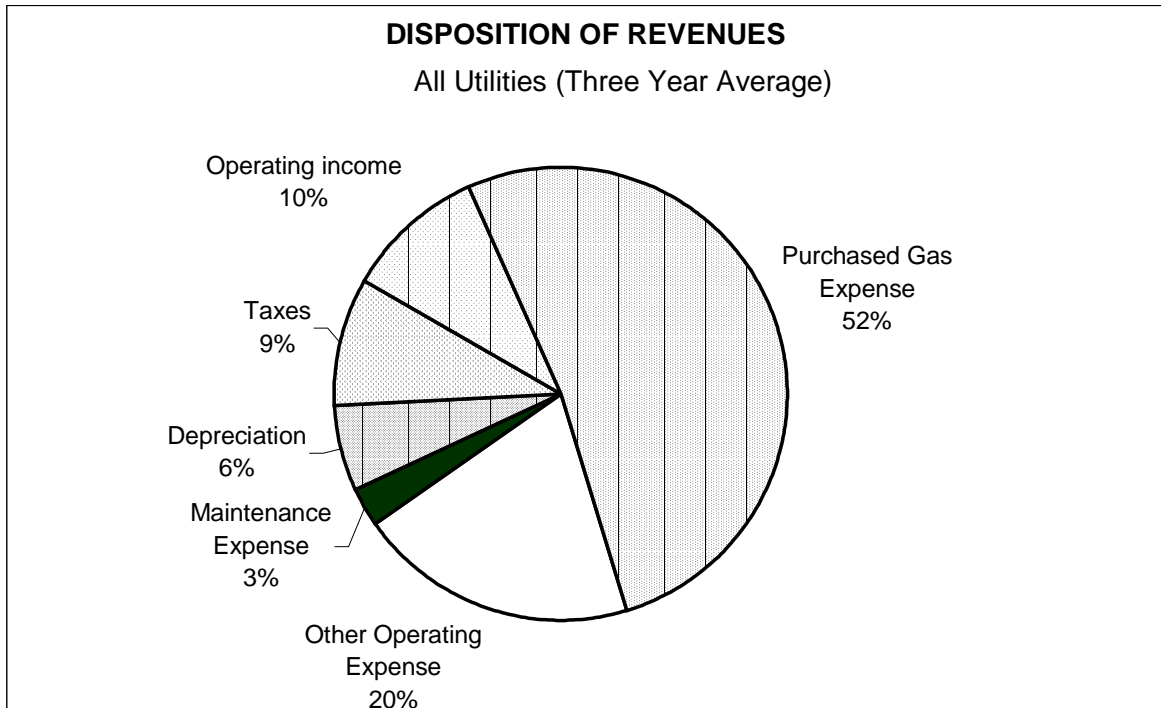
Figure 3 shows the allocation of average revenue for the three years studied. Table 2 summarizes average industry revenue performance by segment. Weather patterns impacted revenues per customer, while changing gas costs impacted both revenues per customer and per therm.

TABLE 2			
UTILITY REVENUE PERFORMANCE			
Annual Average Values per Group			
Data Based on Segment Averages			
	1996	1997	1998
All Companies			
Operating revenue ('000)	\$449,273	\$454,125	\$425,659
Per customer	\$954	\$1,056	\$990
Per therm	\$0.4209	\$0.4761	\$0.4548
Collection period (days)	30.1	32.9	35.2
Gas utilities			
Operating revenue ('000)	\$496,648	\$511,862	\$507,141
Per customer	\$996	\$1,062	\$1,019
Per therm	\$0.4298	\$0.4933	\$0.4670
Collection period (days)	44.1	44.1	37.6
Comb. Gas & Electric Utilities¹			
Operating revenue ('000)	\$445,430	\$453,268	\$348,077
Per customer	\$873	\$1,084	\$965
Per therm	\$0.4032	\$0.4301	\$0.4032
Collection period (days)	22.2	23.0	24.1
Municipal Utilities			
Operating revenue ('000)	\$124,603	\$94,878	\$78,756
Per customer	\$929	\$733	\$867
Per therm	\$0.4078	\$0.3909	\$0.4508
Collection period (days)	43.6	35.2	35.6

Source: A.G.A.,

¹ Figures for gas operations only.

FIGURE 3



Gas revenues accruing to the average combination utility are less than those collected by the average gas utility. Combination utilities' average annual therm loads per account were smaller in both 1996 and 1998, although in 1997 combination utilities broke the trend, posting the largest volumes of the sectors studied (see Table 1). Combination utilities feature significantly shorter bill collection periods, compared to the other industry segments.

Municipal utilities collect far less revenue on average, compared to the rest of the sample. This is largely due to the fact that the typical municipal utility serves fewer customers, compared to the other industry segments. They also feature low per-therm receipts. This in part reflects the public purpose and ownership of municipal utilities: without shareholders to repay, revenues are reduced accordingly. Also, to a lesser extent, the low average price per therm may reflect the municipal utilities' high volume of interruptible sales to institutional, industrial, and power generation customers who make up a sizable proportion of the municipals' total throughput.

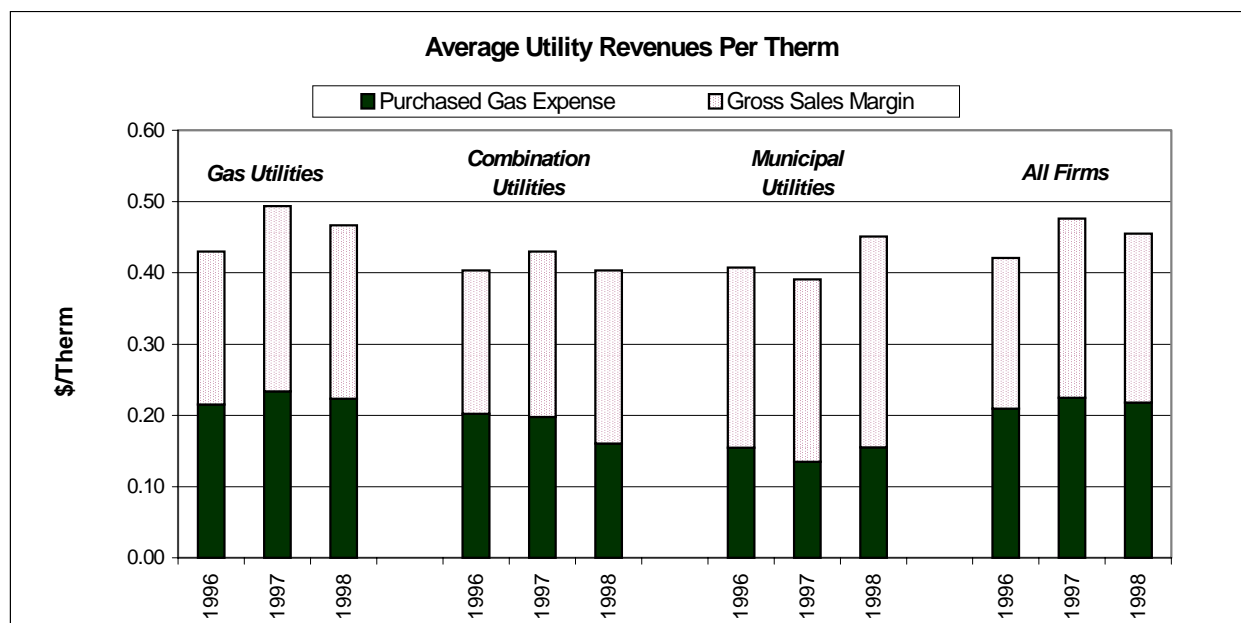
IV-C. O&M ANALYSIS

Operations and maintenance (O&M) expenses are those costs specifically attributable to current-year gas distribution activity. These are cost items that are incurred within an annual time period (as opposed to costs amortized over a period of years as is the case with finance costs and depreciation). A presentation of O&M costs on a per-therm basis will facilitate a comparison of cost efficiencies attained by the various industry segments. Table 3 shows average O&M expense detail for the years studied for the combination and gas utility segments.

All of the segments studied have experienced increased O&M costs per therm from 1996 to 1998. This is largely attributable to an increase in non-gas production costs. Storage and LNG costs have risen 18.4 percent from 1996 through 1998, while General and Administrative (G&A) costs have risen 10.9 percent over the same period. Additionally, the cost of purchasing gas has increased an average of 10.6 percent over the same time period.

Gas utilities have maintained a higher gross sales margins compared to the combination utilities. In 1998, the per therm margin was \$ 0.2258 for gas utilities, compared to \$0.1605 for combination utilities. However, gas utilities exhibited higher O&M costs per therm of throughput in 1998 when compared to combination companies. Between 1996 and 1998, every component of gas utility O&M has grown with the exception of customer service and information expense. Total O&M expense has increased 13 percent over this time period.

FIGURE 4



Source: AGA, USR.

The combination utilities despite the increase in gas costs (nearly 21 percent between 1996 and 1998) were able to reduce total O&M costs in almost every other line item from 1996 to 1998—with the exception of storage and G&A. When compared to gas only firms, combination utilities may enjoy cost advantages in those activities that reflect economies of scope, i.e., the functions that can be shared across gas and electric divisions. Those include customer account functions, customer service and information activities, sales activity, and G&A expenses.

TABLE 3

**UTILITY O&M DETAIL ANALYSIS
AVERAGE MARGIN PER THERM SOLD**

	GAS UTILITIES			COMBO UTILITIES ¹		
	1996	1997	1998	1996	1997	1998
MARGINS PER THERM						
Gas-only revenues	\$0.4298	\$0.4933	\$0.4670	\$0.4032	\$0.4301	\$0.4032
<u>Purchased-gas expense</u>	<u>0.2147</u>	<u>0.2598</u>	<u>0.2412</u>	<u>0.2011</u>	<u>0.2324</u>	<u>0.2426</u>
Gross sales margin	0.2151	0.2336	0.2258	0.2021	0.1977	0.1605
Total production costs²						
Storage & LNG	0.0021	0.0028	0.0028	0.0025	0.0030	0.0040
Transmission	0.0029	0.0030	0.0040	0.0128	0.0024	0.0022
Distribution	0.0252	0.0296	0.0313	0.0252	0.0213	0.0170
Customer accounts	0.0178	0.0203	0.0207	0.0158	0.0150	0.0143
Customer svc. & info.	0.0038	0.0037	0.0038	0.0038	0.0033	0.0029
Sales	0.0021	0.0026	0.0044	0.0020	0.0016	0.0016
<u>Admin. & general</u>	<u>0.0369</u>	<u>0.0420</u>	<u>0.0430</u>	<u>0.0361</u>	<u>0.0274</u>	<u>0.0384</u>
Total O&M	0.3135	0.3723	0.3549	0.3008	0.3184	0.3223
SAME-SIZE ANALYSIS						
Gas-only revenues	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<u>Purchased-gas expense</u>	<u>49.9%</u>	<u>52.7%</u>	<u>51.6%</u>	<u>49.9%</u>	<u>54.0%</u>	<u>60.2%</u>
Gross sales margin	50.1%	47.3%	48.4%	50.1%	46.0%	39.8%
Total production costs²						
Storage & LNG	0.5%	0.6%	0.6%	0.6%	0.7%	1.0%
Transmission	0.7%	0.6%	0.9%	3.2%	0.6%	0.5%
Distribution	5.9%	6.0%	6.7%	6.2%	5.0%	4.2%
Customer accounts	4.1%	4.1%	4.4%	3.9%	3.5%	3.6%
Customer svc. & info.	0.9%	0.7%	0.8%	0.9%	0.8%	0.7%
Sales	0.5%	0.5%	0.9%	0.5%	0.4%	0.4%
<u>Admin. & general</u>	<u>8.6%</u>	<u>8.5%</u>	<u>9.2%</u>	<u>9.0%</u>	<u>6.4%</u>	<u>9.5%</u>
Total O&M	72.9%	75.6%	75.6%	74.6%	74.0%	81.1%

Source: AGA, USR.

¹ Figures for gas operations only.

² Purchased-gas expense is subsumed within total production costs.

NOTE: Figures do not sum precisely due to independent rounding.

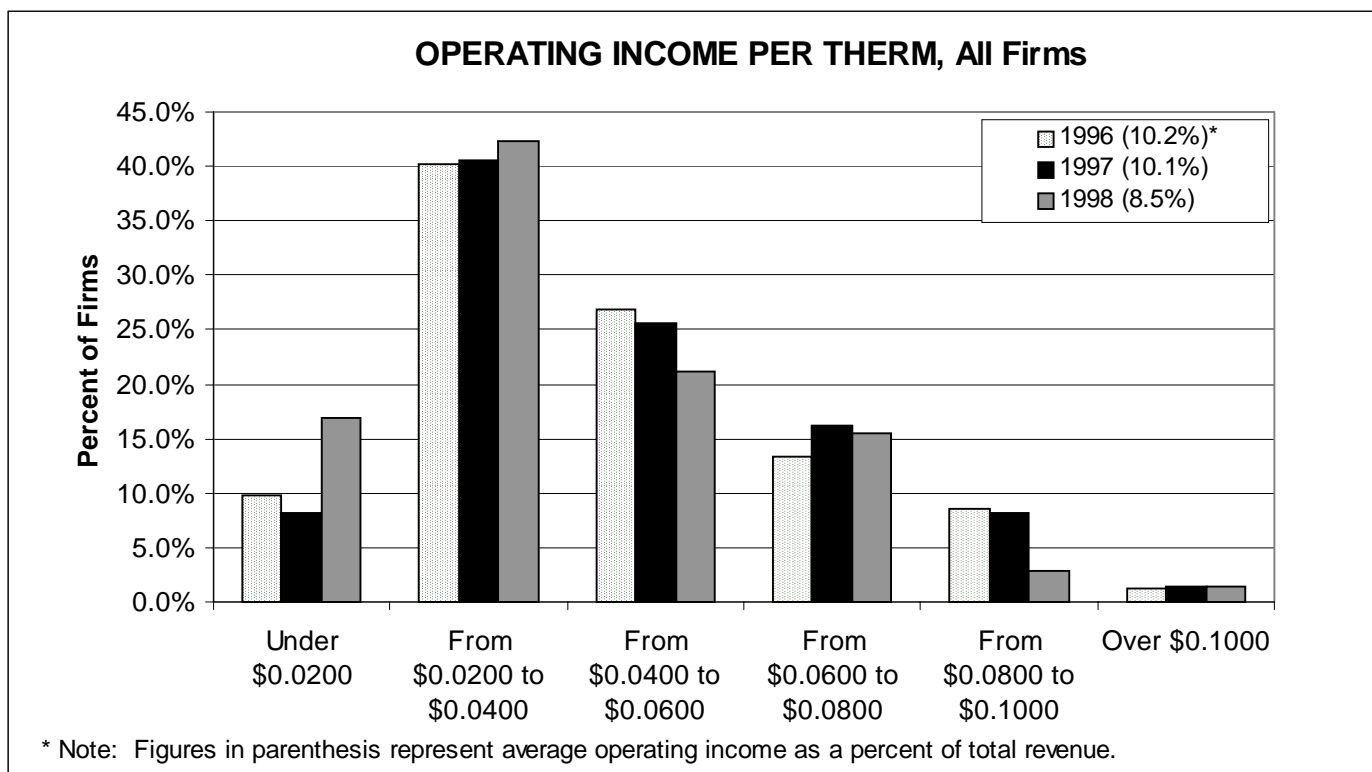
IV-D. INCOME ANALYSIS

Operating income, by accounting definition, represents revenues net of operations expenses. Operating income does not net out capital cost-related expenses such as interest and amortization. A summary of operating income, then, allows a comparison of efficiency in gas distribution. Figure 4 shows the dispersion of individual companies' operating income per-therm. Table 4 shows average operating income results by type of firm.

The gas utility segment produces the highest average magnitude of operating income in the industry sample. Operating income for these firms is typically about 10 percent of revenue. However, in 1998 operating income fell to less than 9 percent of revenue. This is primarily due to increased O&M costs as well as several firms reporting property losses charged to operations. Despite increasing revenue between 1996 and 1998, gas utilities experienced a decline in net income during this period.

Combination utilities generate less income from gas operations, on average, when compared to gas-only utilities. Combination utilities exhibited the lowest ratio of operating income to gas plant in 1998. Table 4 shows a dramatic decline in combination utilities' operating income in 1998, \$20.2 million compared to \$47.6 million in 1997. It is important to remember that these figures only reflect gas operations. When other operations are added, the decline is less pronounced, down 24 percent versus the nearly 60 percent decline shown. It is also worth noting that one firm posting a large operating loss during the year can have a dramatic impact on a sample of this size. Due to the high system density of combination firms, they produce the largest amount of revenue per mile of main of the segments studied.

FIGURE 5



Source: AGA, USR.

TABLE 4

UTILITY INCOME STATEMENT HIGHLIGHTS

AVERAGE VALUES PER GROUP, GAS OPERATIONS ONLY

	GAS UTILITIES			COMBO UTILITIES ¹		
	1996	1997	1998	1996	1997	1998
Operating revenue, \$000	\$496,648	\$511,862	\$507,141	\$445,430	\$453,268	\$348,077
Total O&M, \$000	362,297	386,242	382,471	332,273	335,581	282,178
Operating income, \$000	52,146	51,100	45,122	41,926	47,596	20,232
Percent of Revenue						
Total O&M	72.9%	75.5%	75.4%	74.6%	74.0%	81.1%
Operating income	10.5%	10.0%	8.9%	9.4%	10.5%	5.8%
Per Therm						
Revenue	\$0.4300	\$0.493	\$0.467	\$0.403	\$0.430	\$0.403
Total O&M	0.314	0.372	0.355	0.301	0.318	0.322
Operating income	0.045	0.049	0.041	0.038	0.045	0.027
Per Customer						
Revenue	\$996	\$1,062	\$1,019	\$873	\$1,084	\$965
Total O&M	727	801	772	651	803	773
Operating income	105	106	90	82	114	64
Per Dollar of Gas Plant						
Revenue	\$0.562	\$0.588	\$0.560	\$0.558	\$0.622	\$0.572
Total O&M	0.410	0.443	0.428	0.417	0.461	0.464
Operating income	0.059	0.059	0.048	0.053	0.065	0.036
Per Mile of Pipe²						
Revenue	\$39,407	\$39,614	\$38,176	\$38,855	\$43,149	\$41,681
Total O&M	28,747	29,892	28,768	28,984	31,946	34,065
Operating income	4,138	3,955	3,408	3,657	4,531	2,321

Source: AGA, USR.

¹ Figures for gas operations only.

² Miles of main and services combined.

IV-E. DEBT ANALYSIS

Debt instruments and their management are prominent items on the utilities' financial agendas. Debt has traditionally represented a large share of utility capitalization. This is due to the historically regulated environment in which utilities have operated. The presence of regulatory oversight, from an investor's perspective, suggests less risk, more stable cash flow, and generally better debt ratings and interest coverage from cash flow. Historically, this made the utility industries attractive to bond investors. As for utilities, the containment of interest and other debt-related carrying costs can have a decisive impact on the overall profitability of operations.

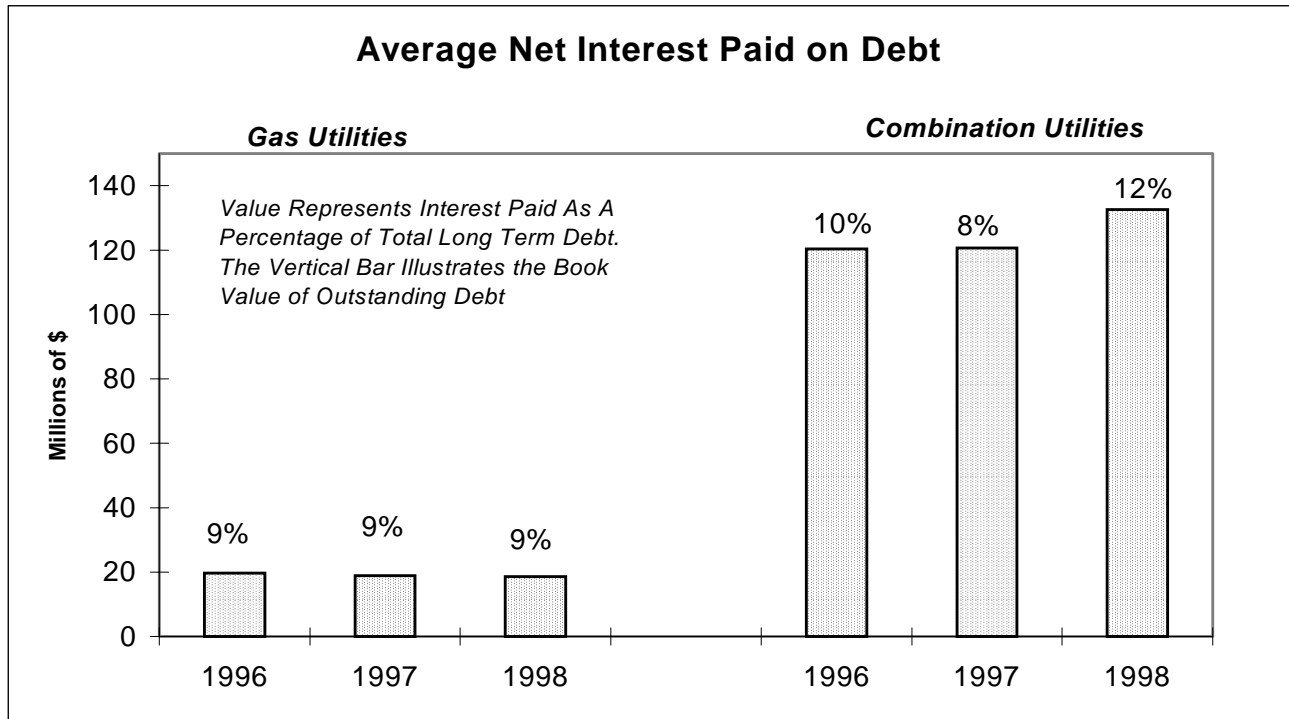
The total cost of capital for a utility reflects the cost of both debt and equity financing.⁸ Table 5 shows summary descriptors of capital costs for utilities by industry segment.

TABLE 5			
UTILITY DEBT AND DEBT COVERAGE			
AVERAGE VALUES			
	1996	1997	1998
Gas Utilities			
Total LT Debt to Total Assets	28.4%	27.7%	27.2%
LT Debt to Total Capitalization	46.2%	44.7%	44.7%
EBITDA Interest Coverage	6.8x	7.1x	7.5x
Combination Utilities¹			
Total LT Debt to Total Assets	28.3%	30.3%	27.9%
LT Debt to Total Capitalization	44.3%	48.5%	49.2%
EBITDA Interest Coverage	5.3x	6.0x	6.1x

Source: AGA, USR.

¹ Figures represent combined gas and electric operations.

FIGURE 6



Note: Combination utility figures represent combined gas and electric operations.

⁸ For combination utilities, such measures necessarily reflect combined gas and electric financials. Some municipal utilities in this study have similar combined activity financing.

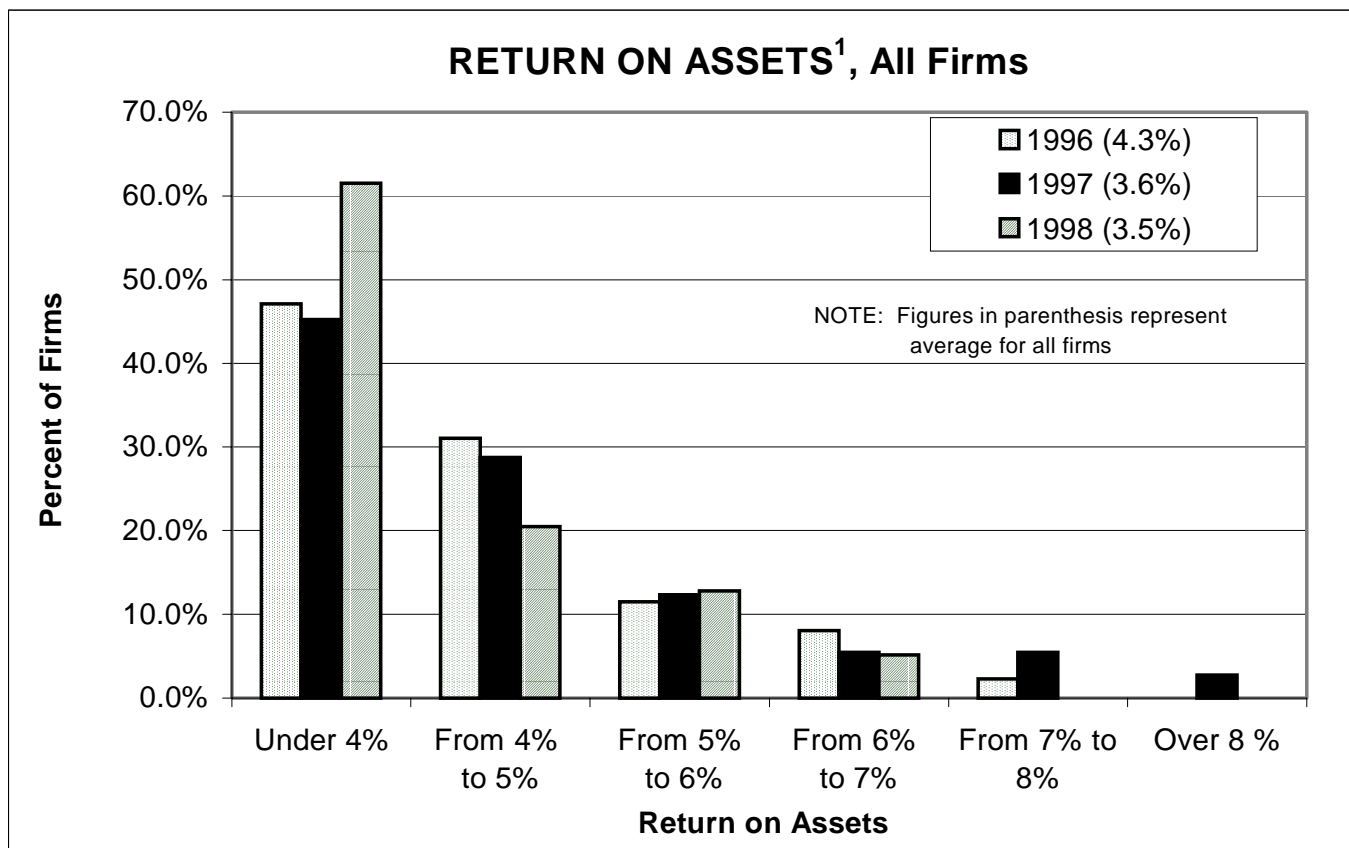
Note again that the discussion of combination utility debt and capital structure cannot be limited to gas operations. Therefore, this portion of the analysis necessarily considers combined-commodity financial performance. The combination utilities feature a diversity of commodity sales and stabilized electric base-load operations attributable to base-load (i.e., not weather-driven) sales.

IV-F. PROFITABILITY ANALYSIS

For this study, profitability is expressed in terms of return on assets (ROA), which relates net income to the value of the asset base that generated that income. Stated differently, ROA measures how well a company's assets "work" to generate income from operations. As such, ROA is convenient for comparing the operating results across companies within an industry.

Figure 7 shows the dispersion of individual company ROA results. Average ROA figures by industry segment in 1998 were as follows: 3.4% for gas utilities, 3.6% for combination utilities, 3.3% for municipal utilities, and 3.5% for all 76 firms studied. Table 6 shows profitability measures for both gas and combination utilities for the years studied.

FIGURE 7



¹ When referring to combined gas and electric operations, the balance sheet items (i.e. total end-of-year assets) refer to the total firm, which could include non-utility assets, gas transmission assets and "other" utility assets (e.g. water), while income statement items (i.e. total revenues) refer to only gas and electric utility distribution operations combined. As a result, these ratios may differ from other reports that consolidate income statement items for the total firm.

Gas Utilities experienced an average 4.0 percent ROA in all three years studied. Combination utilities have exhibited a slight increase in ROA during 1998, but in general their profitability has been declined—ranging from 4.3 to 3.6 percent. While both of these segments have achieved similar returns, this has occurred under different operating circumstances. To examine these differences, it is useful to decompose ROA in two parts, asset turnover and profit margin.

While ROA is typically measured as the ratio of net income to assets, it can also be expressed as asset turnover multiplied by profit margin. Asset turnover measures a firm's ability to generate sales from its fixed asset base. From 1996 to 1998, gas utilities have increased their level of sales from their existing asset base from 0.63x to 0.65x, conversely, combination utilities have increased their asset turnover from 0.45x to 0.51x over the same period.

The second component of ROA is profit margin, or return on sales. This measures the operating profit per dollar of sales. From 1996 to 1998, the profit margins for gas only utilities have declined from 6.7 percent to 5.3 percent. During the same period, combination utilities' profit margin has dropped from 9.7 percent to 7.1 percent. The aggregate effect of slower growth in asset turnover coupled with the decline in profit margin—1.4 percentage points—resulted in the lower ROA experienced by gas utilities. In general, both of these sectors are maintaining their profitability by gaining increased efficiency from their existing assets base to compensate for declining profits margins.

TABLE 6			
UTILITY PROFITABILITY INDICATORS			
AVERAGE VALUES			
	1996	1997	1998
Gas Utilities			
Asset Turnover	0.63x	0.66x	0.65x
Financial Leverage	66.5%	65.5%	65.7%
Equity Multiplier	3.14x	3.01x	3.03x
Profit Margin	6.7%	6.6%	5.3%
ROA ²	4.2%	4.3%	3.4%
ROE ²	13.3%	13.0%	10.4%
Current Ratio	0.83	0.86	0.83
Current Assets/Total Assets	18.2%	18.6%	17.9%
Combination Utilities¹			
Asset Turnover	0.45x	0.40x	0.51x
Financial Leverage	64.1%	67.4%	70.2%
Equity Multiplier	3.08x	3.44x	3.78x
Profit Margin	9.7%	8.6%	7.1%
ROA ²	4.3%	3.4%	3.6%
ROE ²	13.3%	11.8%	13.7%
Current Ratio	0.70	0.73	0.62
Current Assets/Total Assets	8.6%	10.1%	11.9%

Source: AGA, USR.

¹ Figures represent combined gas and electric operations.

² When referring to combined gas and electric operations, the balance sheet items (i.e. total end-of-year assets) refer to the total firm, which could include non-utility assets, gas transmission assets and "other" utility assets (e.g. water), while income statement items (i.e. total revenues) refer to only gas and electric utility distribution operations combined. As a result, these ratios may differ from other reports that consolidate income statement items for the total firm.

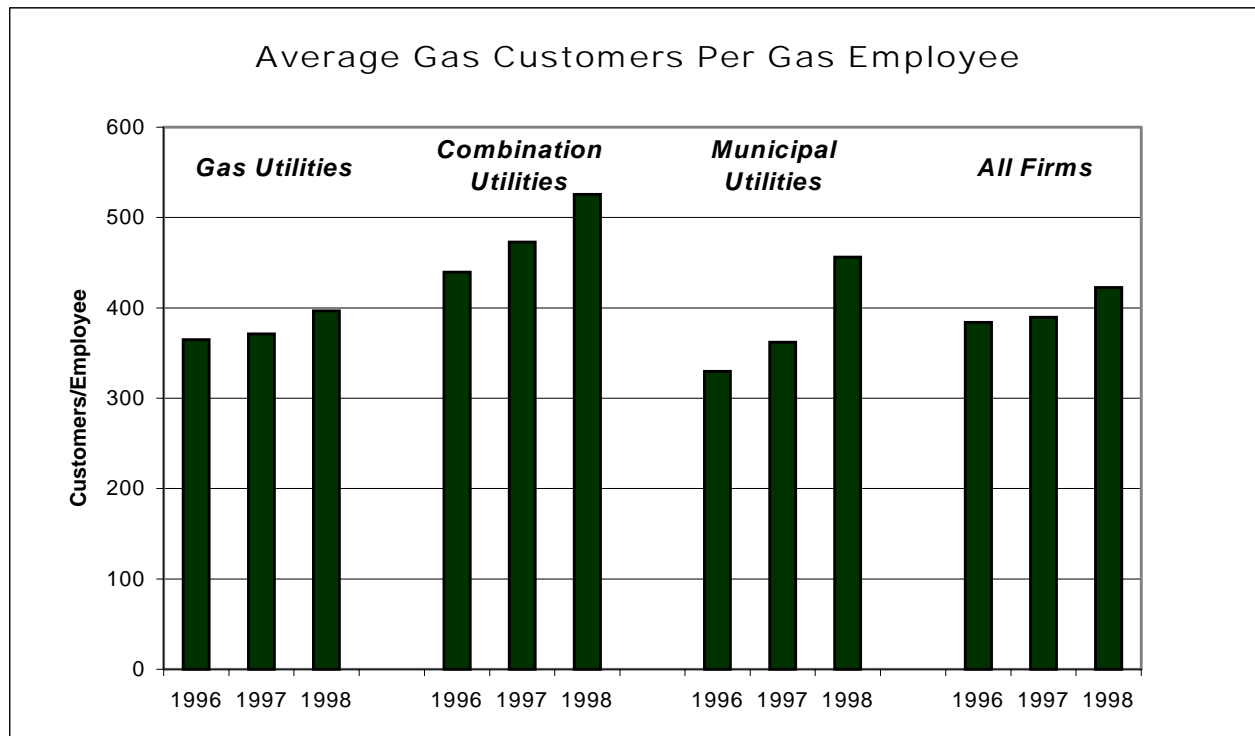
Another measure of profitability is return on common equity (ROE). This differs from ROA in that it takes into account the impact of a firm's capital structure on its profitability. We can examine the capital structure of a firm in many different ways. ROE can be expressed as ROA multiplied by the equity multiplier. The equity multiplier (shown in Table 6) measures a firm's assets relative to its common stock equity. An increase in a firm's level debt financing (an increase in liabilities) will cause a reduction in stockholders equity. This will cause the equity multiplier to rise and thereby increase total ROE. The rise in ROE compensates equity holders for the increased risk they must bear as the firm increases its level of debt.

As table 6 illustrates gas utilities have slightly decreased their total level of debt financing as a percent of their total capitalization. Although gas utilities made little change to their capital structure in 1998, the decline in ROA led to a fall in ROE for the year. Conversely, combination utilities have increased their debt financing from 1996 to 1998, and while their ROA has remained fallen 0.7 percentage points, their ROE has increased slightly over the same period.

IV-G. LABOR PRODUCTIVITY AND WAGE ANALYSIS

Current industry interest in restructuring, efficiency, and cost effectiveness often calls attention to staffing and wage profiles. Table 8 summarizes wage and benefit values by industry segment.

FIGURE 8



Source: AGA, USR.

TABLE 8
UTILITY WAGES AND BENEFITS
AVERAGE VALUES PER EMPLOYEE AT YEAR-END

	1996	1997	1998	3 Year Average
All Firms				
Number of employees at year-end	1,018	910	887	938
O&M wages	\$40,320	\$36,679	\$34,920	\$37,306
Total benefits and pensions	\$12,313	\$11,773	\$9,092	\$11,059
Total salaries, benefits, and pensions	\$47,691	\$50,746	\$48,741	\$49,059
Ratio of total benefits to total compensation	20.2%	20.1%	18.4%	19.5%
Total compensation as a percent of O&M	20.1%	19.6%	20.2%	20.0%
Therms sold per employee	934,265	920,762	963,416	939,481
Customers per employee	384	390	434	402
Gas Utilities				
Number of employees at year-end	1,112	1,032	1,015	1,053
O&M wages	\$42,228	\$39,847	\$39,816	\$40,630
Total benefits and pensions	\$13,142	\$11,744	\$9,479	\$11,455
Total salaries, benefits, and pensions	\$47,001	\$50,893	\$50,073	\$49,322
Ratio of total benefits to total compensation	21.4%	21.0%	18.1%	20.1%
Total compensation as a percent of O&M	20.6%	19.8%	21.0%	20.4%
Therms sold per employee	909,989	879,392	913,775	901,052
Customers per employee	365	371	411	382
Combination Utilities¹				
Number of employees at year-end	1,003	757	688	816
O&M wages	\$42,902	\$37,077	\$25,684	\$35,221
Total benefits and pensions	\$11,099	\$12,709	\$8,385	\$10,731
Total salaries, benefits, and pensions	\$50,580	\$56,602	\$49,092	\$52,091
Ratio of total benefits to total compensation	17.2%	16.7%	17.1%	17.0%
Total compensation as a percent of O&M	19.8%	18.5%	18.5%	18.9%
Therms sold per employee	1,049,314	1,193,261	1,390,862	1,211,145
Customers per employee	439	473	526	479
Municipal Utilities				
Number of employees at year-end	426	380	249	\$352
O&M wages	\$15,470	\$10,404	\$9,416	\$11,763
Total benefits and pensions	\$10,081	\$9,774	\$7,454	\$9,103
Total salaries, benefits, and pensions	\$41,324	\$37,983	\$38,293	\$39,200
Ratio of total benefits to total compensation	24.0%	21.5%	23.3%	22.9%
Total compensation as a percent of O&M	17.8%	20.7%	16.6%	18.4%
Therms sold per employee	719,241	698,374	916,076	777,897
Customers per employee	330	362	456	383
Customers per employee	384	390	434	402

Source: AGA, USR.

¹ Figures for gas operations only.

An oft-cited measure of a utility's productivity is the number of customers served per employee (Figure 8). From 1996 to 1996, all of the sectors studied have increased their productivity in terms of this measure. During this period, gas utilities have increased customers per employee by 12.6 percent, while combination utilities have grown 19.8 percent and municipal utilities have gained 13.0 percent.

SUMMARY

Segments of the gas distribution industry are highly differentiated with respect to their financial performance and operational efficiency. This analysis of industry metrics illustrates the results for three industry segments: gas utilities, combination utilities and municipal utilities. The findings derived from this sample only suggest the attribute profile of the utility industry as a whole. Benchmarks such as these should not be interpreted as what should be, but instead as what is typical.

APPENDIX 1: GLOSSARY

NOTE: Immediately below some glossary items are references to the USR data field(s) which are the source for that item. The specific field reference is in the format (x,y) where x is the schedule and y is the line item on that schedule. In this glossary, numerals serving as a field or schedule reference are in *italics*, while numbers used for the modification of those fields/schedules appear in **bold**. For example, [(6,21) divided by (2,1 / **365**)] refers to Schedule VI, 21 divided by the result of Schedule II, line 1 divided by 365.

O.O.O.O.O

admin. & gen. expense

(4,12)

The overhead cost associated with office activities. Examples of such expenses include stationary, telephone service, office cleaning, heat and power, etc.

asset turnover

(2,1/6,36)

A ratio which expresses sales revenue as a percentage of assets on-hand over corresponding accounting periods (usually one year). This ratio can be interpreted as the relative degree to which a company's assets "work" to generate sales revenue.

assets

(6,36)

The total accounting value of a company's productive resources at a point in time (as on a balance sheet).

base load gas sales

(see "percent base load sales")

book value of assets (as a percent of total assets on balance sheet)

[100% minus (6,6/6,5)]

The ratio of (1) the total monetary value of a firm's assets which have not yet been expended per the accounting principle of depreciation to (2) total assets.

capitalization

(6,51)

The structure of a firm's long-term financing. "Capitalization" refers to the combination of debt and equity, which (in addition to retained earnings) is the monetary equivalent of the firm's assets.

collection period (days)

[6,21) divided by (2,1/365)]

An accounting measure that indicates the efficiency of revenue collections. This measure expresses an accounts receivable total in terms of the number of days of normal revenue collections that would be accumulated to make a sum equivalent to the accounts receivable balance.

combination gas & electric company

A business entity that distributes both gas and electricity to customers within a franchise territory.

common equity

(6,42)

The total value of wealth given by investors to a company in return for ownership of shares (common stock) of that company's assets and retained earnings.

correlation

A statistical indicator which describes the relative strength by which one variable's order of magnitude tends to coincide with another variable's magnitude. Correlation measures vary between zero and plus/minus 1. A correlation of "1" indicates a perfect positive correlation (variable A grows with variable

B); "-1" is perfectly negative correlation (variable A increases as variable B decreases); and "0" represents no correlation (or no relationship between A and B).

customer

An entity which enters into an account with a utility in order to receive natural gas for heating, power, feedstock, and other uses. For current purposes, an individual gas meter functionally represents each customer account. As such the terms "customer," "meter," and "account" are used interchangeably in this study.

customer accounts expense

(4,9)

The expense attributable to serving a customer. For utility operations, this includes metering, billing, and fixed charges incurred by customer hook-ups.

customer service & information

(4,10)

The expense attributable to all customer assistance and information operations. Bill remediation, bill inserts, and other communication with existing customers is included in this category.

debt

6,50 + 6,54 + 6,61

The summed monetary value of a company's short- and long-term obligations to repay money that it has borrowed from lenders.

density

[20,17) divided by (26,4 + 26,7)]

A ratio which describes the degree to which meters are "packed" onto a distribution system. For each observation in this study, the number of meters on a utility distribution system (numerator) is compared to the total miles of distribution and service mains (denominator).

depreciation

(2,4)

The operating expense which, as an accounting mechanism, represents the predetermined annual write-down of a durable capital asset. Depreciation, as an accounting item, impacts net income and taxes. It is not a cash expenditure, but is an annual recognition of long-lived asset costs which are spread over the years that these assets are expected to be in operation.

distribution expense

(4,8)

The operating expense which represents the cost of moving natural gas from a utility's city gate to all the meters along the franchise's system of gas mains.

EBIT

2,18 + 2,8)

An measure which describes, for an accounting period, the total company income net of operations expense, but not yet net of interest and tax expenses. This measure facilitates comparisons of companies' economic output after operations, capital depletion, and depreciation conventions.

EBITDA

(2,18 + 2,6 + 2,8)

An measure which describes, for an accounting period, the total company income net of operations expense, but not yet net of interest, tax, depreciation, and amortization expenses. This measure facilitates comparisons of companies' economic output from operations.

EDITDA interest coverage

[(2,18 + 2,4 + 2,6 + 2,8) divided by (2,24)]

The comparison of a company's financial returns to its interest payment obligations, for a specific accounting period. "EBITDA" is an income statement result; specifically, it means "earnings before interest, taxes, depreciation, and amortization." This ratio indicates the company's relative ability to generate the cash flow necessary to meet its interest payment obligations.

field

An element of database structure which holds the recorded values for a specific attribute of interest common to all observations. See also *Uniform Statistical Report (USR)*

firm gas sales

(See percent firm sales)

gas plant

(6,2)

The undepreciated capital facilities directly related to gas distribution. See also "total plant in service."

gas utility

A franchised gas distribution company, the equity value of which is held by shareholders in the form of stock. The earnings of such a company are distributed wholly or in part of shareholders in the form of dividends. Any earnings not distributed are retained by the company on its balance sheet.

gross sales margin

For gas only: [(2,1) minus (4,2)], both expressed on a per-therm basis

An accounting measure that describes the per-unit dollar value that remains after the acquisition cost of the unit is subtracted from the retail revenue received for that unit.

Heating Degree Days (HDD)

A measure which describes the average annual space heating requirements for a given location.

implied long-term (LT) debt cost

(2,24 divided by 6,50)

A proxy measure of the interest rate paid by utilities for long-term borrowing (obligations over one year). Data as collected on the USR did not request a breakout of shore- vs. long-term interest obligations. Therefore, a strict calculation of cost of long term debt (annual interest paid on long-term obligations divided by total long-term debt) was not possible. The implied cost relates net interest costs (interest of all types) to long-term debt. The result permits some distortion of true long-term debt costs,

income before external items and cumulative effects

(2,25)

An income statement line item describing a company's financial earnings after accounting for operations and maintenance expenses, interest, taxes, depreciation and amortization. It excludes extraordinary (and usually unplanned) expenses attributable to external and cumulative effects, such as lawsuits, externally imposed accounting changes, etc.

long-term debt

(6,50)

Financial instruments which become due on a date at least on year beyond the current accounting period. These include the mortgages and bonds, which represents a company's capital borrowings. By issuing debt, the company has an obligation to repay its lenders the amount borrowed plus regular increments of interest.

lower quartile (LQ)

A statistical measure that describes a data value that is halfway between the median and the lowest value in the data set. Technically defined as the "first quartile." See "quartile" and "median."

mean

An average value; i.e. a single calculated value which is representative of a set of values. The mean is calculated by summing a set of observation values, then dividing that total by the number of observations that were used.

median (MED)

A statistical measure describing the "middle position" for a sequence of observations, or the 50-percent position in a sequence of ordered observations (2nd quartile). See "quartile."

meter

(See "customer")

municipal utility

A type of gas distribution company which is owned by a local government entity and run on behalf of that entity's citizenry. Whereas investor-owned utilities usually pay out dividends to shareholders, the municipal utility's dividends accrue to the citizens in the form of a lower cost for energy.

net worth

The residual value of a company's assets after deducting liabilities.

O&M

Salary expenses accounted for within the operations & maintenance portion of budgets. These salaries are distinguished from salaries paid under contracts that are covered by other budget line items.

operations and maintenance (O&M)

These are accounting summaries of expenditures attributable to company operations. Most importantly, these are expenses over which management has direction. These are distinct from (i.e. do not include) expenses imposed from outside of operations such as interest payments and amortization.

observation

A single event for which an activity is recorded or measured. For a measurable event the unique record for any observation is that observation's value. For example, if the variable of interest is annual therms sold, then "1,000,000" may be the value of this variable for the single observation "ABC Company."

operating income

The financial outcome of a company that represents revenues earned less the expenses attributable to operations, including depreciation, amortization, and taxes (but not expenses such as interest payments, amortization, etc.).

percent firm sales

The proportion of total annual utility therm sales sold per without anticipation of interrupted service. The complement to this proportion is the percentage of therms sold per interruptible or transportation rate schedules.

percent base load sales

The proportion of total annual utility therm distribution which is not determined by cold-weather heating needs. For current purposes, this variable describes the proportion of annual throughput that is sold by a utility to accounts established for water heating, electricity generation, and industrial process power and feedstocks.

preferred stock

This type of capitalization represents a relatively small portion of the typical utility's capital profile. It is equity that returns a steady but limited flow of returns to the investor, functioning much like the coupons paid to bond holders. Of the 80 investor-owner companies studied here, 45 (56 percent) had some amount of preferred stock on their balance sheets. The average proportion of capitalization subsumed in preferred stock was four percent for gas utilities and six percent for combination utilities.

purchased gas expense

(4,3)

The utility expenditure for the gas it buys on the market from producers, transmission companies, marketers, and other sources.

quartile

A statistical tool which analyzes a set of values that are sequenced by order of magnitude. Any set of ordered values can be divided into four quartiles. The observation reached after counting off the first 25 percent of the sequenced values (counting from the lowest value), is the first quartile. The second quartile is the observation at the 50 percent position in the sequence; the third quartile is at the 75 percent position; and the fourth quartile is at the 100 percent position, which is also the highest value for the entire data set.

Return On Assets (ROA)

(2,29) divided by (6,36)

A financial ratio that expresses net income as a percentage of assets. This ratio measures how well a company uses its assets to generate operating income.

Return On Equity (ROE)

(2,29) divided by (6,42)

A financial ratio that expresses net income as a percentage of total common stock equity. This ratio measures how well investors in a firm are doing relative to other investments.

revenue

(2,1)

The receipts from sales administration, including commissions overhead, materials, etc.

sales expense margin

(4,11)

The cost of sales administration, including commissions overhead, materials, etc.

same-size financial statement

This is an alternative method of displaying income statement and balance sheet summaries. It is intended to facilitate comparisons across company types. As opposed to displaying absolute dollar values, the same-size statement presents each line item as a percentage of its aggregate total. The same-size income statement sets revenues at 100.0 and all other items are a percent of that total. The same-size balance sheet similarly sets total assets (as well as total liabilities and owners' equity) to 100.0.

tax expense

(2,8)

The amount representing the utility's obligation to pay taxes, including sales, gross receipts, income, and property taxes. This total includes pass-through taxes collected by the utility on behalf of local government jurisdictions.

total assets

(see "assets")

total benefits

(13,10)

The annual compensation accruing to utility employees in the form of pensions, health care, insurance, and other non-payroll items.

total compensation

(13,6 + 13,10)

The total annual compensation accruing to utility employees, both as payroll and non-payroll compensation as well as benefits.

total debt

(see "debt")

total plant in service

(6,5)

The total value of utility plant as shown on the balance sheet. In the case of combination utilities, this will include gas and electric plant used for the purpose of power distribution.

transmission

(4,7)

The cost to a utility for moving natural gas purchases from its source to its city gate.

Uniform Statistical Report (USR)

The standardized reporting form used by the American Gas Association to collect financial and operating information from its individual member companies. The USR data is the source for information presented in this study.

upper quartile (UQ)

A statistical measure, which describes a data value that, is halfway between the median and the highest value in the data set. Technically defined as the "third quartile." See "Quartile" and "meridian."

value

In statistics, a "value" is the recorded measurement for an individual observation. For example, if the variable of interest is "annual therms sold," then "1,000,000" may be the value of this variable for the single observation "ABC Company."

variable

An attribute, more or less common to a set of observations, which is subject to measurement. For example, if the variable of interest is "annual therms sold," then "1,000,000" may be the value of this variable for the single observation "ABC Company."

weighted average

A statistical measure for describing the mean or "central tendency" of a set of numeric observations. Weighted averages are used in this stud to provide benchmark ratios per group or per industry segment. For these benchmark ratios and arithmetic (simple) average would be the mean value of the ratios calculated individually for each company. Instead, the weighted average ratio has a its numerator the sum of observations for that variable divided by the sum of observations for the denominator variable. For example, the density of distribution system metric for gas utilities relates the sum of all gas utility meters divided by the sum of all gas utility miles of pipe.

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