

Before the  
Public Utility Commission of Texas

Houston Lighting & Power Company

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Rate of Return Testimony  
of  
Stephen F. Sherwin

Foster Associates, Inc.  
Washington, D. C. 20036

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Preface

1. Q. Please state your name, profession, and employment.
- 2.
3. A. My name is Stephen F. Sherwin. I am an economist and
4. Executive Vice President of Foster Associates, Inc. an
5. economic consulting firm whose principal office is lo-
6. cated at 1101 Seventeenth Street, Northwest, Washing-
7. ton, D. C. 20036. A summary of my qualifications
8. appears in Appendix A.
- 9.
10. Q. Have you previously testified before this Commission?
- 11.
12. A. Yes, on behalf of Houston Lighting & Power Company in
13. Docket No. 2676.
- 14.
15. Q. What is the purpose of your testimony?
- 16.
17. A. I have been asked to express an opinion on the equity
18. portion of the fair rate of return, applied to a 3/31/80
19. net investment - original cost rate base for Houston
20. Lighting & Power.
- 21.
22. Q. Have you prepared an exhibit?
- 23.
24. A. Yes. The statistical support for my opinion is set
25. forth in an exhibit, consisting of 20 schedules, pre-
26. pared by me or under my supervision.

1. 1. Summary of Conclusions

2.

3. Q. What are your criteria for determining the fair return?

4.

5. A. I have been guided by both legal and economic criteria.

6.

7. For legal criteria I have been guided by the decisions  
8. of the United States Supreme Court in the 1923 Bluefield,  
9. the 1944 Hope, and the 1968 Permian Basin cases, as well  
10. as prior decisions of this Commission. I understand  
11. these decisions to define a fair return in terms of the  
12. triple standards of permitting a company to achieve a  
13. level of earnings comparable to those earned by other  
14. enterprises of corresponding risk and uncertainty, main-  
15. tain its financial integrity, and attract capital on  
16. reasonable terms. These standards are also the economic  
17. guidelines for a fair return encompassed in the opportu-  
18. nity cost principle, each of which must be met before the  
19. end result meets the criteria for a fair return.

20.

21. Q. What are the principal conclusions of your study?

22.

23. A. There has been a sharp increase in the cost of capital  
24. rendering the previously authorized 15.0 percent common  
25. equity return insufficient by any of the standards em-  
26. ployed for evaluating the reasonableness of return.

27.

28. The principal cause of the rise in the cost of capital  
29. are a rise in the economy's longer term underlying infla-  
30. tion rate to a level of 9 to 10 percent, and higher  
31. long-term interest rates, which are unlikely to decline  
32. significantly until inflationary expectations are reduced.

1. My conclusion is that the fair rate of return on equity  
2. for Houston Lighting & Power is in the range of 15.75-  
3. 16.0 percent on a 43 percent equity ratio. That con-  
4. clusion does not rest on present capital market condi-  
5. tions; instead, it assumes that there will be a decline  
6. in interest and profit rates, and a moderation of in-  
7. flationary forces.

8.  
9. In essence, the 16 percent reflects a finding that:

10.  
11. 1. The prospective level of earnings of industrials of  
12. reasonably similar investment risk to the average  
13. "Aa" rated utility is about 15.5 percent; the cur-  
14. rent level of return is about 16.0-17.0 percent.  
15.  
16. 2. The prospective (DCF) cost of attracting capital  
17. for Houston Lighting & Power is 15.9 percent, on  
18. the assumption that the dividend yield in the next  
19. 12 to 18 months will decline from the current level  
20. of about 9.5 to 8.25-8.5 percent.

21.  
22. Investors regard Houston Lighting & Power as riskier  
23. than the typical "Aa" rated utility, primarily because  
24. of a very high level of construction expenditures and an  
25. inadequate reserve capacity. My return recommendation  
26. rests on the assumption that the Commission will adopt  
27. such regulatory techniques as to mitigate some of these  
28. higher risks. The most direct means of achieving that  
29. objective is to include a sufficient amount of CWIP  
30. in the rate base to permit the financing of no less  
31. than 40 percent of capital expenditures from internally  
32. generated funds.

1. Q. Please summarize the conceptual approach underlying your  
2. return recommendation.

3.  
4. A. Regulation acts as a surrogate to competition. The  
5. competitive principle requires that utility investors be  
6. given an opportunity -- not a guarantee -- to preserve  
7. the real value of their capital to no greater, but also  
8. to no lesser, a degree than that to which investors in  
9. industrial companies (of similar investment risk) can  
10. achieve a preservation of real capital values.

11.  
12. The measurement of the cost of equity capital is essen-  
13. tially a process of sifting multiple facets of factual  
14. evidence, which serve as constraints on the exercise of  
15. judgment. The different techniques for estimating the  
16. equity return requirement -- the comparable earnings  
17. test, financial integrity approach and the discounted  
18. cash flow technique -- provide useful evidence, but no  
19. single measure constitutes an exclusive basis for esti-  
20. mating reasonable return requirements.

21.  
22. In applying these different techniques, I distinguish  
23. between the cost of attracting capital and a fair return.  
24. The cost of attracting capital is the current cost per  
25. dollar of new capital expressed in today's dollars of  
26. purchasing power. The fair return is a broader concept;  
27. I define it as the level of return which provides utilities  
28. with an earnings opportunity that maintains the value of  
29. their capital to the same extent as that achieved by  
30. industrial companies of similar risk.

31.  
32. The fair return reflects the opportunity cost in relation  
33. to the original cost-related book equity; I measure the  
34. fair return by reference to the comparable earnings

1. test. The cost of capital reflects the opportunity cost  
2. derived from stock market data; I estimate that cost by  
3. reference to the discounted cash flow technique.  
4.  
5. After periods of prolonged inflation, the cost of attract-  
6. ing capital lies typically below the fair return, as  
7. measured by the earnings of industrials, because the  
8. book value (to which returns are related) reflects vin-  
9. tagged -- not current -- values. However, due to the  
10. expectation of a longer term inflation rate close to 10  
11. percent, interest rates will remain at a relatively high  
12. level so that the cost of attracting equity capital is  
13. now at or above the prospective level of industrial  
14. returns.  
15.  
16. Q. In developing your recommendation, what assumptions have  
17. you made with respect to prospective economic condi-  
18. tions?  
19.  
20. A. My return recommendation rests on the following premises  
21. with respect to economic conditions: I accept the Admin-  
22. istration's projection of a recession in 1980 and a  
23. moderation of inflationary pressures. I project interest  
24. rates on "Aa" rated long-term utility bonds to decline  
25. in 1981 to the levels prevailing in the last half of  
26. 1979, but not below 10.0 percent on the average. I also  
27. project a decline in dividend yields and corporate pro-  
28. fits from the current level. If interest rates do not  
29. decline to the projected level, I have understated the  
30. prospective cost of capital.  
31.  
32. Q. What is your analysis of the risks faced by Houston  
33. Lighting & Power?

1. A. I distinguish between business and financial risks, the  
2. latter relating to the equity portion of the capital  
3. structure.

4.

5. The Company's business risks have increased during the  
6. last year due to continued escalation of construction  
7. expenditures, delays in the scheduled completion of  
8. nuclear facilities, the possibility of having to rely on  
9. purchased power and a diminution of internally generated  
10. funds. These increased business risks have been largely  
11. offset by a lessening of financial risks, as reflected  
12. in a rise in the common equity ratio from 40 to 43 per-  
13. cent. Hence, the increase in my return recommendation,  
14. from 15.0-15.5 percent in the last proceeding, to 15.75-  
15. 16.0 percent stems primarily from an increase in the  
16. opportunity cost of capital.

17.

18. Q. In applying the comparable earnings test, what period  
19. did you select for measuring the return?

20.

21. A. I reviewed data for the last ten years, but gave the  
22. greatest weight to the earnings experience of indus-  
23. trials in 1977-1979 as being most likely to be repre-  
24. sentative of 1980-1981 conditions. For industrials, the  
25. average earnings level of 1977-1979 lies approximately  
26. one percentage point below the current level.

27.

28. Q. Please summarize your application of the comparable  
29. earnings test.

30.

31. A. Since the application of the comparable earnings test to  
32. utilities is circular, I focused on several groups of  
33. industrials.

1. The first group consists of Standard & Poor's 400 com-  
2. pany composite, whose earnings averaged 15.6 percent in  
3. 1977-1979 and reached 17.0 percent in 1979. However,  
4. this average is not representative of companies whose  
5. investment risks are similar to those of Houston Light-  
6. ing & Power.

7.  
8. When the comparable earnings test is applied to indus-  
9. trials, the critical operative concept is the determina-  
10. tion of similarity of risk. The relevant risks are  
11. those perceived by investors. While utilities have  
12. quite different operating, market, and financial charac-  
13. teristics from those of industrials, it is possible to  
14. achieve a reasonable degree of balance and comparability  
15. by reference to investment risks. Security analysts  
16. have traditionally ranked common equities of utilities  
17. as relatively high-grade investments, essentially because  
18. they are characterized by stability of returns.

19.  
20. In selecting samples of industrials of comparable in-  
21. vestment risks to Houston Lighting & Power, I selected  
22. two groups whose stability of equity returns was, on the  
23. average, equal to that of "Aa" rated electric utilities,  
24. and two groups based on stability of return and stock  
25. rankings. However, to avoid inclusion of both "highly  
26. profitable enterprises", viewed askance by the Court of  
27. Bluefield, and companies whose earnings are chronically  
28. depressed (and thereby not meeting the capital attraction  
29. test), I selected only those companies whose earnings  
30. fell within plus or minus one standard deviation of the  
31. average return.

32.  
33. The average returns achieved in 1977-1979 by my selected  
34. samples ranged from 15.1 to 16.0 percent; for 1979 the

1. range was 15.5 to 17.0 percent. I estimate the prospec-  
2. tive returns of these stable groups of industrials at  
3. approximately 15.5 percent.  
4.

5. If the investor appraisal of the risks of Houston Light-  
6. ing & Power were identical to the above selected groups,  
7. the 15.5 percent projection would constitute the fair  
8. return. However, the application of the financial inte-  
9. grity test reveals that investors regard Houston Lighting &  
10. Power as riskier.

11.

12. Q. What standard do you suggest for measuring financial  
13. integrity?

14.

15. A. My evidence discusses two levels of financial integrity.

16.

17. First, there is a minimum level which calls for earn-  
18. ings sufficient to achieve not only an appropriate  
19. coverage of fixed charges, but also, provided stock  
20. markets are reasonably stable, to permit a company to  
21. raise new equity capital without diluting the existing  
22. stockholders' investment.

23.

24. Second, there is a level of financial integrity which  
25. is consistent with the opportunity cost principle.  
26. It is that level which maintains the value of the in-  
27. vestment equal to that of industrial stocks of similar  
28. investment risk.

29.

30. Under either definition, attention to market-to-book  
31. ratios becomes an important aspect of determining a  
32. fair return, not only as a measure of the degree to  
33. which financial integrity has been maintained, but also  
34. as an aid in gauging investor appraisals of risk differences.

1. Q. How did you apply these standards of financial integrity?  
2.
3. A. Essentially by a comparative analysis of the relation  
4. between returns on equity and market-to-book ratios.  
5. To draw inferences as to relative risks of industrials  
6. compared to utilities, it is necessary to examine suffi-  
7. ciently long periods of time to eliminate short-run  
8. erratic gyrations of stock prices. For the four-years  
9. 1976 to 1979, the returns of my two industrial samples,  
10. selected on the basis of stability of return equal to  
11. "Aa" rated electrics, exceeded those of the "Aa" rated  
12. electrics by about 20 percent, and there was an approxi-  
13. mately similar difference in market-to-book ratios. I  
14. believe these comparisons warrant the inference that  
15. investors view the average of "Aa" rated electrics as  
16. being of similar risk to the two groups of industrials.  
17.
18. A similar analysis for Houston shows that a higher  
19. level of earnings, compared to the "Aa" rated electrics,  
20. was accompanied by relatively lower market-to-book  
21. ratios, which suggests that Houston is viewed as riskier.  
22. However, as previously noted, my recommendation rests  
23. on the assumption that the Commission will largely  
24. mitigate these higher risks through inclusion of amounts  
25. of CWIP in the rate base as to permit the company to  
26. achieve cash generation objectives, which I regard  
27. as appropriate in the present circumstances. For this  
28. reason my return recommendation reflects only a 25-50  
29. basis point upward adjustment from the prospective  
30. earnings levels of stable industrials.  
31.
32. Q. Has Houston been able to maintain its financial inte-  
33. grity?  
34.

1. A. No. Despite a rise in achieved returns from 13.4 in  
2. 1978 to 14.3 percent in 1979, Houston's market-to-book  
3. ratio declined, averaging 82 percent in the six months  
4. ended March 1980. Even after the substantial rise in  
5. April 1980, the stock was still selling at only 83  
6. percent of book value in mid-June 1980. The company's  
7. financial integrity has now been impaired for more than  
8. two years.  
9.
10. Q. What are your findings by reference to the discounted  
11. cash flow approach?  
12.
13. A. Although the DCF technique gives the appearance of  
14. mathematical precision, it rests to a considerable  
15. degree on the exercise of judgment, particularly with  
16. respect to the time period over which growth rates are  
17. computed and the degree to which current dividend yields  
18. reflect uncertainties that the future earnings growth  
19. will exceed or fall short of past growth rates.  
20.
21. The dividend yield of Houston Industries rose from 7.0  
22. percent in 1978 to 8.0 percent in 1979 and 9.5 percent  
23. in the first quarter of 1980. I estimate the prospec-  
24. tive dividend yield for mid-1980 through 1981 to aver-  
25. age in the range of 8.25-8.50 percent, on the assumption  
26. that interest rates will decline.  
27.
28. I believe investors may reasonably expect a longer term  
29. prospective growth rate for Houston Industries of about  
30. 7.0 percent, which I adjusted downward to 6.5-6.75  
31. percent for utility operations, in recognition of the  
32. higher growth rate associated with Houston Industries'  
33. non-utility operations. The "bare bones" current cost  
34. of attracting capital is therefore 15.0 percent,

1. excluding financing and market pressure costs. I re-  
2. gard that estimate as conservative because I have made  
3. no adjustment for the lower yield of Houston Industries',  
4. due to the more rapid growth expectation from the diver-  
5. sified operations of Primary Fuels.  
6.  
7. Adjusted for financing and market pressure costs of  
8. 0.9 percent, the cost of attracting capital is 15.9  
9. percent.  
10.  
11.  
12.  
13.  
14.  
15.  
16.  
17.  
18.  
19.  
20.  
21.  
22.  
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25.  
26.  
27.  
28.  
29.  
30.  
31.  
32.  
33.  
34.

1.        2. Economic Trends Bearing on Return Requirements

2.  
3.        Q. Please summarize the economic developments during the  
4.                last twelve months and your appraisal of the prospective  
5.                economic situation.

6.  
7.        A. The economic scene is dominated by the need to reduce  
8.                the rate of inflation, attempt to restore confidence in  
9.                the dollar, and avoid a potentially severe recession.

10.  
11.                In July 1979 the Administration forecasted no growth in  
12.                real GNP in 1979, a 2 percent growth in 1980, and an  
13.                inflation rate of 10.5 percent for 1979 and 8.5 percent  
14.                in 1980. The experienced growth in 1979 was 2.3 per-  
15.                cent; the inflation rate ranged from 9.0 to 13.0 per-  
16.                cent, depending on whether it is measured by reference  
17.                to the GNP deflator or the Consumer Price Index.

18.  
19.                The Economic Report of the President of January 1980 es-  
20.                timated a decline in real growth for 1980 of about 1.0  
21.                percent and an inflation rate of 10.4 percent. In March  
22.                1980, Members of the Council of Economic Advisers esti-  
23.                mated the 1980 inflation rate at about 13 percent, but  
24.                leveling off to about 10 percent by the end of 1980. In  
25.                June 1980, the Council on Wage and Price Stability esti-  
26.                mated the economy's basic inflation rate at 10 percent.

27.  
28.                The principal causes of the rapid accentuation of in-  
29.                flationary pressures in the second half of 1979 were the  
30.                lack of a restrictive monetary policy, international  
31.                tensions, and the OPEC-induced rise in the price of  
32.                oil, which fanned inflationary expectations (quarterly  
33.                inflation rates are shown on Schedule 1). When specula-  
34.                tion spread to the commodity markets, the Federal Re-

1. serve inaugurated a fairly restrictive monetary policy  
2. in October 1979, culminating in partial credit controls  
3. in March 1980.

4.  
5. In some respects, these policies have been successful.  
6. Speculation in the commodity markets has subsided; the  
7. prices of precious metals have broken sharply; there has  
8. been some recovery of the dollar in the foreign exchange  
9. market, and some moderation of inflationary expecta-  
10. tions.

11.  
12. There remains some doubt whether, even with a recession,  
13. inflationary forces can be significantly reduced. How-  
14. ever, in the context of a proceeding that requires the  
15. balancing of consumer and investor interests, I believe  
16. that Government policies conceived in good faith should  
17. be given the benefit of the doubt, and that Government  
18. forecasts -- in the absence of clear and compelling con-  
19. trary evidence -- should be accepted at face value.  
20. That was the premise on which I projected a decline in  
21. the inflation rate, interest rates, and common stock  
22. utility yields in my evidence before this Commission in  
23. July 1979, and that is the premise on which I proceed  
24. today. I suggest that a public utility commission which  
25. proceeds on a similar premise will act consistent with  
26. the national interest, and assure a reasonable balance  
27. of consumer and investor interests.

28.  
29. I therefore accept the Administration's forecast of a  
30. reduced inflation rate, but I believe the Administration  
31. may have underestimated the length and severity of the  
32. recession.

1. However, the acceptance of the Administration's fore-  
2. casts should be accompanied by an awareness of some of  
3. the implicit underlying assumptions which may rapidly  
4. change:  
5.  
6. 1. Although the Federal Reserve has now adopted a  
7. fairly restrictive monetary policy, and the pub-  
8. lic's awareness of the dangers of unbridled in-  
9. flation is acute, it is uncertain whether a sig-  
10. nificant rise in unemployment will not force a  
11. relaxation of this policy before inflationary ex-  
12. pectations can be significantly reduced or re-  
13. versed. The longer these expectations prevail, the  
14. more painful become the measures required to re-  
15. verse them.  
16.  
17. 2. Domestic economic policy can no longer be divorced  
18. from international developments. Foreign develop-  
19. ments may necessitate a substantial increase in  
20. defense expenditures, which could aggravate infla-  
21. tionary pressures, lead to "runs" on the currency,  
22. and thereby force a renewed rise in interest  
23. rates.  
24.  
25. Given the above imponderables, economic projections be-  
26. come subject to a more than usual margin of error.  
27.  
28. Q. Please discuss the trend in rates for fixed income se-  
29. curities.  
30.  
31. A. There was a virtually uninterrupted rise in interest  
32. rates between the third quarter of 1977 and the first  
33. quarter of 1980, followed by a decline in the second  
34. quarter of 1980. In my opinion, long-term interest

1. rates will experience some further decline before the  
2. end of 1980, barring an accentuation of runs on the dol-  
3. lar in the foreign exchange market, or further interna-  
4. tional complications.

5.  
6. Long-term Government bond yields rose from approximately  
7. 9.0 percent in the first quarter of 1979 to 12.5 percent  
8. in March 1980 (Schedule 2), and declined to about 9.5  
9. percent in mid-June 1980.

10.  
11. The yield on outstanding Moody's "Aa" rated utility  
12. bonds -- the rating carried by Houston Lighting & Power  
13. -- rose from 9.8 percent in the first quarter of 1979 to  
14. above 14.0 percent in March 1980, and declined to about  
15. 11.5 percent in mid-June 1980. The spread in yields be-  
16. tween "Aa" and "A" bonds has increased from the usual  
17. 20-25 basis points to about 50 basis points.

18.  
19. The yields on "Aa" rated newly issued bonds rose from  
20. 9.9 percent in the first quarter of 1979 to about 15.0  
21. percent in March 1980 (Schedule 3), and declined to  
22. about 11.25 percent in June 1980.

23.  
24. The rise in preferred stock yields has been only slight-  
25. ly less rapid than for bonds. Yields on outstanding  
26. high-grade preferred rose from 9.1 percent in the first  
27. quarter of 1979 to 13.0 percent in March 1980 (Schedule  
28. 4), at which point there was virtually no market for new  
29. preferred issues. With the decline in yields to 10.4  
30. percent in June 1980, there is again a market for pre-  
31. ferred stock. However, prudent financial management of  
32. utilities with large capital requirements cannot count  
33. on raising large amounts of preferred stock capital in  
34. the near future.

1. Prospective interest rates in 1980-1981 will be signif-  
2. icantly influenced by the progress on the inflation  
3. front and the depth of the recession. While I expect  
4. short-term interest rates to decline very rapidly, the  
5. demand for long-term capital will remain strong. More-  
6. over, it is unlikely that the inflation rate can be  
7. rapidly reduced below 10 percent because, even after the  
8. current galloping rate is brought down, there will be  
9. strong forces seeking to bring about a catch-up of  
10. wages.

11.  
12. I do not believe that the outlook for a reversal of in-  
13. flationary expectations is hopeless. However, with in-  
14. flationary fears having become impregnated in the minds  
15. of investors, I believe it reasonable to assume that  
16. interest rates on long-term Government bonds will hover  
17. close to the near-term prospective inflation rate of  
18. about 10.0 percent. Evidence of such expectations can  
19. be found in the futures markets, showing yields (in  
20. mid-June 1980) for long-term bonds in mid-1981 at about  
21. 9.8 percent. Since the spread in yields between Govern-  
22. ment and "Aa" rated utility bonds is typically about 1.0  
23. percentage point, I believe it unlikely that interest  
24. rates on new "Aa" bonds will decline to less than 10.0  
25. to 10.5 percent in the next twelve months. A decline to  
26. this level would put "Aa" rated bonds at about the level  
27. prevailing in the last half of 1979 (Schedule 3).

28.

29. Q. Do the present and prospective levels of high interest  
30. rates constitute evidence of a rise in the opportunity  
31. cost of equity capital?

32.

33. A. Yes. Since the opportunity cost of equity capital re-  
34. flects a risk premium above that of debt capital, the

1. two tend to move in tandem. Even under somewhat opti-  
2. mistic assumptions as to the success of reducing in-  
3. flationary forces, the prospective level of interest  
4. rates will be about 100 basis points above the level  
5. anticipated at the time of the last proceeding. Clear-  
6. ly, this rise in the opportunity cost needs to be taken  
7. into account in setting the allowable return. However,  
8. it does not follow that reasonable utility equity re-  
9. turns should be set at either a constant absolute dif-  
10. ferential to interest rates or as a fixed proportion of  
11. interest rates. The defect of such an approach is that  
12. the required equity risk premium changes over the busi-  
13. ness cycle.

14.  
15. In periods of rising interest rates, the required risk  
16. premium tends to shrink and, in periods of declining  
17. interest rates, the risk premium rises. The essential  
18. reason for the changing risk premium is that, in periods  
19. of high interest rates, there is a high probability of a  
20. prospective decline, leading to capital gains in utility  
21. stocks which are viewed as being interest-sensitive.  
22. The prospect of capital gains leads investors to accept  
23. a lesser risk premium. The tax laws providing differ-  
24. ential treatment for income and capital gains accentu-  
25. ate this tendency. Conversely, when interest rates are  
26. low and investors expect a reversal, investors face  
27. prospective capital losses on utility equities, which  
28. prompts investors to seek relatively high risk premiums.

29.  
30. Q. Are there any general indicators which shed light on the  
31. cost of equity capital?

32.  
33. A. Yes. I regard the level and trends in corporate profits  
34. as providing a general indicator which also serves as an

1. aid in the interpretation of the comparable earnings  
2. test.  
3.  
4. After-tax profits in relation to GNP averaged 5.3 per-  
5. cent in 1960-1964, rose to a peak of 6.4 percent in  
6. 1965, declined sharply to 3.8 and 4.6 percent in the re-  
7. cessions of 1970 and 1975, and rose to above 6.0 percent  
8. in 1979 (Schedule 5).  
9.  
10. The above data indicate that in terms of historical per-  
11. spective, the current corporate profit level in relation  
12. to GNP still falls short of the level attained in the  
13. mid-1960's, which were years of relatively high growth  
14. and little inflation. Although there is now a growing  
15. awareness that corporate profits may be inadequate in  
16. relation to the Nation's needs of capital formation and  
17. the necessity to improve productivity, I do not project  
18. a further rise in profit levels. Since I anticipate a  
19. lessening of economic growth, I project some decline in  
20. industrial returns from the levels of 1979. I shall re-  
21. flect these projections in the application of the com-  
22. parable earnings test.  
23.  
24.  
25.  
26.  
27.  
28.  
29.  
30.  
31.  
32.  
33.  
34.

1. 3. Risks

2.

3. Q. What is your approach to the measurement of risk?

4.

5. A. Risk is the probability of failing to achieve the antic-  
6. ipated return or suffering an impairment of capital.

7.

8. I know of no valid formula for the measurement of risks.  
9. For analytical purposes, I believe it is useful to dis-  
10. tinguish between business risks (encompassing market,  
11. supply, regulatory, and physical hazards) and financial  
12. risks (the degree of leverage to which the common equity  
13. is exposed). Nevertheless, in the final analysis, the  
14. relevant risks are those perceived by investors, as re-  
15. flected in a company's securities. However, since in-  
16. vestors' appraisals of risks can only be inferred --  
17. even though the inference may be drawn from a statisti-  
18. cal measurement -- a qualitative analysis of the dif-  
19. ferent facets of business and financial risks consti-  
20. tutes a useful point of departure.

21.

22. Q. Have there been any changes in business risks of HL&P  
23. since the last proceeding?

24.

25. A. In my opinion, there has been some increase in business  
26. risks arising primarily from the continued escalation of  
27. an extraordinarily high level of construction expendi-  
28. tures, delays in the scheduled completion of nuclear  
29. facilities, an increasing possibility of reliance on  
30. purchased power, and a diminution of the proportion of  
31. internally generated funds.

32.

33. Houston Lighting & Power's most significant risks arise  
34. from the necessity to make large capital expenditures to

1. meet the service requirements of their customers. The  
2. growth in Kwh sales is expected to be 4-5 percent (com-  
3. pared to 8 percent in the 1970's). But the construction  
4. expenditures in 1980-1982 are projected at \$2.5 billion  
5. (compared to \$1.5 billion in 1977-1979), so that the net  
6. utility plant should rise from \$3.3 billion (year-end  
7. 1979) to about \$5.8 billion. Thus, while the growth in  
8. sales is expected to be only half the rate of the  
9. 1970's, the growth in plant will continue at approxi-  
10. mately the same rate in the next three years as in the  
11. last three years, and the expenditures at a 75 percent  
12. higher level.

13.  
14. There are two fundamental causes for this lopsided rela-  
15. tion between growth in sales and growth in plant.  
16. First, the expansion of plant proceeds under conditions  
17. of increasing costs (both nominal and real) due to in-  
18. flationary, environmental, and technological reasons.  
19. Second, there is the necessity to increase the Company's  
20. inadequate reserve capacity. Both constitute signifi-  
21. cant risks.

22.  
23. There are several aspects to the risks of expansion:

24.  
25. 1. In periods of inflation and high interest rates, a  
26. rising level of capital expenditures creates risks  
27. of attrition, due to the need to finance capital  
28. expenditures above the embedded cost of debt and  
29. preferred stock. In the twelve months ending  
30. 3/31/81, the Company expects to raise at least \$250  
31. million in debt. Projecting the incremental cost  
32. at 11 percent, the embedded cost of debt would be  
33. raised from 7.86 percent to 8.32 percent. At the  
34. requested overall return of 11.36 percent, the ef-

1.                   fect of the projected rise in the embedded cost of  
2.                   debt is to reduce the return on common equity to  
3.                   15.46 percent.  
4.
5.           2.    A rising level of capital expenditures diminishes  
6.                   the quality of earnings due to a rising proportion  
7.                   of AFUDC. Houston Lighting & Power's AFUDC as a  
8.                   proportion of net income available for common stock  
9.                   rose from 16 percent in 1976 to 23 percent in 1978,  
10.                   and to 29 percent in 1979. While it is still at a  
11.                   level below the approximately 35 percent ratio for  
12.                   the industry, the gap has significantly narrowed.  
13.                   The prospects are for a further rise in HL&P's  
14.                   AFUDC ratio, which constitutes increasing risk.  
15.
16.           3.    A high rate of capital expenditures adversely af-  
17.                   fects investors' appraisal of the stock because it  
18.                   diminishes the proportion of internally generated  
19.                   funds. The proportion of Houston's internally  
20.                   generated funds declined from 61 percent in 1976 to  
21.                   42 percent in 1979.  
22.
23.           4.    A rapid rise in utility plant not matched by a cor-  
24.                   responding rise in sales inevitably leads to re-  
25.                   quests for rate increases. Public resistance to  
26.                   rate increases rises with the frequency and size of  
27.                   the rate increases. The greater the public resist-  
28.                   ance, the greater the risk of not achieving returns  
29.                   commensurate with the risks.  
30.
31.    Q.    Would you now discuss the risks arising from the Com-  
32.                   pany's inadequate reserve capacity?

1. A. Houston Lighting & Power's reserve margin has declined  
2. from 31.1 percent in 1975 to 18.8 percent in 1978, and  
3. 19.9 percent in 1979. The industry's 1979 reserve  
4. capacity was reported at 38.0 percent (Electrical World,  
5. 9/15/79).

6.  
7. HL&P expects to maintain a minimum reserve margin of ap-  
8. proximately 15 percent in excess of its estimated peak-  
9. load requirements through 1980. If the Company is able  
10. to meet its presently scheduled in-service dates of its  
11. current construction projects, it will be required to  
12. purchase up to 800 megawatts of capacity from other  
13. utilities during the 1981-1982 period. This constitutes  
14. approximately 8 percent of its own capacity.

15.  
16. A contract with the City of Austin provides for the pur-  
17. chase of up to 500 megawatts; additional power is cur-  
18. rently being sought, through either purchase or modifi-  
19. cation of existing units. However, the cost of such ad-  
20. ditional power (which could reach 5 percent of total  
21. maximum generating requirements) is uncertain. Thus,  
22. considerable risk arises in connection with a slim re-  
23. serve margin.

24.  
25. A related aspect of risks arises in connection with the  
26. construction of nuclear facilities. The completion of  
27. the South Texas facility has been delayed, and the  
28. permit for the Allens Creek project has not yet been  
29. granted. These delays are in large measure the result  
30. of the accident at Three Mile Island.

31.  
32. Physical risks of electric utilities had previously not  
33. received much attention. The initial impact of the ac-  
34. cident was to raise the cost of equity capital for com-

1.           panies with significant nuclear generation; by the end  
2.           of the year, the impact had virtually disappeared.<sup>1/</sup>  
3.  
4.           Nevertheless, the events in Pennsylvania have provided a  
5.           very forceful illustration of the interrelation between  
6.           physical and economic risks resulting from a company  
7.           having a high concentration of capital in relatively few  
8.           plants. The nuclear shutdown has created an increased  
9.           investor awareness that any accident causing the outage  
10.          of a plant may necessitate the purchase of power from  
11.          neighboring utilities at an increased level of costs  
12.          which may not be automatically passed on to customers.  
13.          This increased awareness of the impact of physical risks  
14.          on financial viability -- resulting solely from the con-  
15.          centration of capital -- is likely to have a long-  
16.          lasting upward pressure on the cost of capital.

17.  
18.          The above supply risks are partially mitigated by the  
19.          high proportion (over 80 percent through 1981) of HL&P's  
20.          fuel requirements met by natural gas purchased under  
21.  
22.  
23.  
24.  
25.

26.          1/ To illustrate, there were nineteen electric utilities  
27.          with more than 20 percent of electric generation from nu-  
28.          clear power in 1978. Their average market-to-book ratio de-  
29.          clined from 87 percent in the first quarter of 1979 --  
30.          i.e., prior to Three Mile Island -- to 80 percent in the  
31.          second quarter of 1979. By comparison, the average market-  
32.          to-book ratio of 67 other electric utilities declined from  
33.          89 to 86 percent. By the fourth quarter of 1979, the nine-  
34.          teen showed an average of 75 percent, compared to 80 percent  
              for the 67 electrics. Of course, many factors affect  
              market-to-book ratios, so that the widening of the spread  
              from 2 to 5 percentage points may also be attributed to  
              other causes.

1. long-term contracts. However, the proportion of gener-  
2. ating requirements fueled by natural gas is rapidly de-  
3. clining, to 68 percent in 1985 and 21 percent in 1990.  
4. With coal becoming the principal substitute, supply  
5. risks will become interwoven with labor problems in the  
6. coal industry and the financial viability of the rail-  
7. road industry. Moreover, the substitution of coal for  
8. natural gas creates risks of attrition due to the Com-  
9. mission's ruling precluding passing on all increased  
10. fuel costs. In essence, therefore, the prospects of  
11. supply risks are rising.

12.

13. Q. In your opinion, are the business risks of HL&P greater  
14. than those of industrial companies?

15.

16. A. No. The market risks of an electric utility are less  
17. than those of the typical competitive industrial firm  
18. due to the exclusive franchise granted a utility and the  
19. more stable nature of demand for utility services over  
20. the course of the business cycle. However, these lesser  
21. business risks must be balanced against higher financial  
22. and regulatory risks of utilities.

23.

24. Q. Can the business risks arising from the prospective ris-  
25. ing level of capital expenditures be mitigated by regu-  
26. latory action?

27.

28. A. Yes, they can be mitigated, but not totally eliminated.  
29. The risks of attrition can be mitigated by the use of a  
30. forward test year or the adjustment of test year costs  
31. for known and probable cost increases. Since the Com-  
32. mission has an obligation to protect the public, it can  
33. only be expected to approve conservative estimates of  
34. probable cost increases. In a period of continued in-

1.           flation, it is highly likely that conservative cost es-  
2.           timates will fall short of the actual cost increases.  
3.           Thus, some attrition risks will be unavoidable.  
4.  
5.           Another avenue for mitigating risks is to permit the in-  
6.           clusion of all CWIP in the rate base. It constitutes  
7.           the most direct means of alleviating the increasing dif-  
8.           ficulties that may reasonably be expected in raising  
9.           what, by any standard, are very large capital require-  
10.          ments. If all CWIP were included in the rate base, one  
11.          could be reasonably certain that there would be no ob-  
12.          stacles to raising all necessary capital at reasonable  
13.          rates. Moreover, it is highly likely that the premium  
14.          (above the equity cost of high-grade industrials) now  
15.          attached to the utility's cost of raising equity capital  
16.          (discussed in Chapter 4) would disappear. However, to  
17.          minimize the unavoidable burden of a rate increase on  
18.          its customers, Houston Lighting & Power has constrained  
19.          its revenue requirement by seeking the inclusion of only  
20.          such amounts of CWIP in the rate base (85 percent) as to  
21.          permit the generation of 40 percent of its capital ex-  
22.          penditures through internally generated funds.  
23.  
24.          The above observations are not intended as critical com-  
25.          ments of the Commission's regulatory practice, which is  
26.          universally viewed as fair and equitable, and ranks  
27.          among the best in the country. But the essence of en-  
28.          lightened regulation is to adapt the regulatory mold to  
29.          changing economic conditions. Faced with the overriding  
30.          need to permit the Company to meet customers' service  
31.          requirements in a period of unsettled capital market  
32.          conditions, and in light of the fact that the Company's  
33.          requested equity return rests on the assumption of an  
34.          (uncertain) prospective reduction in interest rates and

1. dividend yields, the Commission should be prepared --  
2. through the inclusion of an adequate amount of CWIP in  
3. the rate base -- to enable the Company to raise new  
4. equity capital at the estimated cost of 16 percent.  
5.

6. Q. Do you have any factual basis to support the proposition  
7. that no less than 40 percent of capital expenditures  
8. should be raised through internally generated funds?  
9.

10. A. Yes. I made a study of the proportion of gross plant  
11. additions (excluding AFUDC) financed by external sources  
12. (net of retirements). The results for the 29 "Aa" rated  
13. electric utilities show that, for the three-year period 1977-  
14. 1979, external sources accounted for 58 percent of plant  
15. additions. (The corresponding median figure was 64 per-  
16. cent.)  
17.

18. Thus, the typical "Aa" rated utility has financed ap-  
19. proximately 40 percent of its capital requirements  
20. through internal cash generation. Since the growth in  
21. capital expenditures of the typical Aa rated utility is  
22. less than that of HL&P, I believe the use of a 40 per-  
23. cent minimum is supported by industry practice.  
24.

25. Q. How do you evaluate Houston's financial risks as re-  
26. flected in capital structure ratios?  
27.

28. Comparative data on capital structure are shown for the  
29. following groups of electric utilities in Schedule 6:  
30.

31. 1. 85 electric and electric-gas distribution utili-  
32. ties, representing all such companies listed on the  
33. New York Stock Exchange with revenues over \$50 mil-  
34. lion in 1978;

1. 2. A subgroup of 41 electric utilities whose revenues
2. from electric operations accounted for more than 90
3. percent of total revenues in 1978;
- 4.
5. 3. A subgroup of 29 electric-gas distribution utili-
6. ties whose bonds were rated "Aa" by Moody's;
- 7.
8. 4. Seven electric utilities operating in Texas;
- 9.
10. 5. The Department of Energy's data for 211 Class A and
11. B electriccs.
- 12.

13. Since all of HL&P's revenues are derived from electric  
14. operations and its bonds are rated "Aa", it has the  
15. greatest similarity with the groups of 41 and 29 com-  
16. panies.

17.  
18. An evaluation of HL&P's capital structure should start  
19. with the relative debt ratios. The data show that, as  
20. of December 31, 1978 (the latest data available for com-  
21. parative purposes), the debt ratio of HL&P was 52.5 per-  
22. cent compared to a range of 48.7 percent for the 29 "Aa"  
23. electric companies to 50.8 percent for the seven Texas  
24. utilities.

25.  
26. HL&P's preferred stock ratio was 8.3 percent, compared  
27. to 13.5 percent for the 29 electriccs and 10.6 percent  
28. for the seven Texas utilities. HL&P's common equity  
29. ratio was 39.2 percent compared to 36.6 percent for the  
30. 41 electriccs and 38.6 percent for the seven Texas  
31. utilities.

32.  
33. Although HL&P's common equity ratio has been slightly  
34. above the average for other utilities, and in view of

1. its relatively thin preferred stock component, the cus-  
2. tomers have not been burdened with an undue income tax  
3. cost. Thus, the Company has maintained a balanced  
4. capital structure.

5.  
6. In times of financial stringency, the maintenance of an  
7. adequate common equity ratio provides the best assurance  
8. for raising capital on reasonable terms. In view of the  
9. high level of future capital expenditures and prospec-  
10. tive interest rates, there are several reasons for at-  
11. taining a higher common equity ratio:

- 12.
13. 1. The limited market for preferred stock capital;
- 14.
15. 2. The inability in the past two years to maintain
16. even the nominal integrity of the previously com-
17. mitted capital;
- 18.
19. 3. The desirability of maintaining the "Aa" bond rat-
20. ing.

21.  
22. The above factors lead me to the conclusion that the  
23. proposed 43 percent equity ratio is reasonable in con-  
24. junction with an approximately 50 percent debt ratio.  
25. However, the rise in the common equity ratio constitutes  
26. a diminution of financial risks.

27.  
28.  
29.  
30.  
31.  
32.  
33.  
34.

1.       4.   The Cost of Common Equity Capital

2.

3.       Q.   By what tests will you determine the cost of common  
4.       equity to Houston Lighting & Power?

5.

6.       A.   I shall consider three separate tests:

7.

8.               ◦   Comparable earnings

9.               ◦   Financial integrity

10.              ◦   Capital attraction

11.

12.       For each of these tests several techniques of measure-  
13.       ment will be employed.

14.

15.       Since HL&P is a wholly owned subsidiary of Houston In-  
16.       dustries, two of the above standards -- namely, finan-  
17.       cial integrity and cost of attracting capital -- can be  
18.       applied only by reference to Houston Industries. When a  
19.       holding company owns subsidiaries, reliance on the con-  
20.       solidated company's cost of equity as a proxy for the  
21.       cost of the subsidiaries is dependent on reasonably  
22.       similar risk characteristics of the subsidiaries. If  
23.       the risk characteristics are different, it becomes im-  
24.       portant that each subsidiary contributes earnings com-  
25.       mensurate with its risks to avoid cross-subsidization.

26.

27.       One of Houston Industries' subsidiaries -- Utility Fuels  
28.       -- is engaged essentially in providing regulated serv-  
29.       ices to the utility. The Commission took these differ-  
30.       ential risk characteristics into account in its last de-  
31.       cision. The other subsidiary -- Primary Fuels -- has  
32.       risk characteristics that are greater than those of the  
33.       utility operations.

1. in the last rate proceeding, available data showed that  
2. in 1978 Primary Fuels accounted for less than 2 percent  
3. of revenues and 5.7 percent of net income. The impact  
4. on the total operations of Houston Industries was there-  
5. fore de minimis. In 1979, Primary Fuels accounted for  
6. 2.2 percent of revenues and 7 percent of net income.  
7. The impact is still negligible, so that the cost of  
8. Houston Industries' common stock can still be used as a  
9. proxy for the cost of Houston Lighting & Power. More-  
10. over, the level of return earned by Primary Fuels is so  
11. far above that of the utility operations that there has  
12. been no subsidization of nonregulated activities. How-  
13. ever, the more rapid earnings growth of Primary Fuels  
14. needs to be considered in the determination of the  
15. growth component of the discounted cash flow technique.

16.  
17.

18. a. The comparable earnings approach

19.

20. Q. Please summarize the rationale of the comparable earn-  
21. ings approach and discuss the appropriate period for  
22. measuring earnings.

23.

24. A. The economic rationale is the opportunity cost of capi-  
25. tal concept, which holds that capital should not be com-  
26. mitted to any venture unless it can earn a return com-  
27. mensurate with that prospectively available in alterna-  
28. tive employments of similar risk. The relevant risks  
29. are those perceived by investors, so that the focus of  
30. the comparable earnings test should be on the prospec-  
31. tive earnings potential of companies that are of com-  
32. parable investment risks to the utility.

1. The period of time selected for analysis should reflect  
2. economic conditions which may reasonably be expected to  
3. prevail during the next two years. Reliance on any re-  
4. cent period captures some inventory profits, which  
5. utilities cannot achieve. If inventory profits consti-  
6. tuted a one-time, nonrecurring phenomenon, they should  
7. be totally disregarded in estimating future earnings  
8. capacity. But since inflation is likely to continue  
9. indefinitely, although hopefully at a lower than the  
10. present double-digit rate, it is reasonable to expect  
11. that some inventory profits will be recurring. Indeed,  
12. inventory profits have become a significant part of  
13. compensation for inflation achieved by investors in  
14. manufacturing concerns.

15.  
16. The preceding considerations lead me to give the great-  
17. est weight to the earnings experience of 1977-1979 as  
18. being most likely to be representative of prospective  
19. conditions. In support of that conclusion, it should be  
20. noted that the 1977-1979 level of corporate profits lies  
21. considerably below the 1979 level and does not consti-  
22. tute an unduly high rate of profit in relation to GNP  
23. (Schedule 5).

24.  
25. Q. Do you regard it as appropriate to apply the comparable  
26. earnings test to utilities or industrials?

27.  
28. A. The principal focus should be on the earnings of invest-  
29. ment-grade, nonregulated industrials, with appropriate  
30. recognition for relative risks.

31.  
32. To apply the comparable earnings test to utilities would  
33. constitute circular reasoning, and be tantamount to let-  
34. ting the earnings of each regulated company be guided by

1. other regulated awards rather than by alternative op-  
2. portunity returns available to capital. To break this  
3. circular reasoning, the earnings of utilities must be  
4. analyzed in terms of the degree to which they permit  
5. utilities to maintain an adequate degree of financial  
6. integrity [discussed in Section 4(b)].  
7.

8. Q. How do you propose to apply the comparable earnings test  
9. to industrials?

10.  
11. A. The critical operative concept in the application of the  
12. comparable earnings test by reference to industrials is  
13. to find firms of similar investment risk to utilities.  
14. There are essentially two approaches to the measurement  
15. of similarity of risk: one is to seek a sample of com-  
16. panies of reasonably comparable risk; the other is to  
17. infer differences in risks from investor appraisals in  
18. the market. I shall rely on both approaches.  
19.

20. No two companies are precisely alike in physical, oper-  
21. ating, and financial characteristics. However, the com-  
22. parable earnings standard does not rest on finding a  
23. group of companies exactly alike, but instead requires  
24. that there be a reasonable degree of balance between  
25. different kinds of risk encountered by utilities and the  
26. group of industrials with which utilities are compared.  
27. The differences in physical, operating, and financial  
28. characteristics do not preclude the formulation of judg-  
29. ment as to the impact of differences on the degree of  
30. risk borne by common stockholders. Such judgments are  
31. continuously made by the investment community.  
32.

33. Most industrials incur greater business risks than HL&P.  
34. However, managements of industrials seek to offset busi-

1.           ness risks by reducing financial risks through thicker  
2.           equity ratios. The result of this policy is a tendency  
3.           toward equality as between industrials and utilities  
4.           with respect to the combined business and financial  
5.           risks in terms of the investment risks borne by common  
6.           stockholders.

7.  
8.           The problem at hand is to find criteria which will per-  
9.           mit the translation of this general tendency toward  
10.          equality of investment risks into specific groups of  
11.          companies with a closer degree of comparability to the  
12.          economic and investment risk characteristics of the reg-  
13.          ulated utility. I know of no single, all-encompassing  
14.          formula for the measurement of risks. While the ap-  
15.          praisal of risks varies widely among different inves-  
16.          tors, the investors' composite appraisal tends to be  
17.          reflected in market valuations. In that sense, the  
18.          market constitutes an "objective" appraisal of risks and  
19.          the adequacy of earnings levels. This is one of several  
20.          considerations which warrants attention to market-to-  
21.          book ratios, with due regard to the fact that market  
22.          values reflect factors other than experienced or allow-  
23.          able returns.

24.  
25.          Q. Please explain your application of the comparable earn-  
26.          ings test with reference to industrials.

27.  
28.          A. My application of the comparable earnings test is made  
29.          by reference to three groups of industrials.

30.  
31.          The first group comprises Standard & Poor's 400-company  
32.          industrials composite, as representative of a cross-  
33.          section of American industrials, widely followed by  
34.          investors.

1. The second group comprises two smaller samples of manu-  
2. facturers selected on the basis of perhaps the most im-  
3. portant investment characteristic associated with util-  
4. ities, namely, stability of earnings. Both samples rep-  
5. resent companies with a degree of stability of equity  
6. returns which, on the average, was virtually identical  
7. to that of Houston Industries and the 29 "Aa" rated  
8. utilities. One group was selected from ten stable in-  
9. dustries, the other from all manufacturing industries.

10.

11. The third group comprises a further two samples, based  
12. on stability of returns and common stock rankings.

13.

14. Q. What has been the earnings experience of Standard &  
15. Poor's composite average?

16.

17. A. The earnings rate for Standard & Poor's 400 industrials  
18. averaged 13.0 percent for the five-year period ending  
19. 1975, and rose to 15.6 percent for the three-year period  
20. ending 1979. The average return for 1979 was 17.0 per-  
21. cent (Schedule 7).

22.

23. While Standard & Poor's 400 series comprises companies  
24. of widely diverse risks, many of which are quite dis-  
25. similar to HL&P, the S&P average is widely followed by  
26. the investment community, and is viewed as represent-  
27. ative of the industrial sector. The fact that S&P's 400  
28. index shows a 1977-1979 earnings rate of 15.6 percent is  
29. therefore entitled to some weight.

30.

31. Q. Would you now explain your selection of samples of indus-  
32. trial companies whose investment risks you regard as  
33. similar to those of electric utilities, focusing first  
34. on the conceptual approach?

1. A. The three dominant economic characteristics of distribu-  
2. tion utilities are a high capital intensity, a franchise  
3. to serve a particular territory, and relatively stable  
4. demand conditions over the course of the business cycle.  
5. Security analysts have traditionally ranked the common  
6. equities of utilities as comparatively high-grade in-  
7. vestments essentially because they are characterized by  
8. a relatively high stability of equity returns.

9.  
10. Instability of returns is, of course, only one of sev-  
11. eral indicators of risk. Investments in companies which  
12. experience stable but low earnings are not as desirable  
13. as those whose earnings fluctuate around a higher level  
14. of earnings. Thus, in selecting samples of comparable  
15. industrials, I considered both the level and stability  
16. of earnings.

17.  
18. Q. Would you now summarize the selection process of your  
19. several samples of industrials selected on the basis of  
20. stability of returns?

21.  
22. A. The first sample represents 44 companies selected from  
23. ten out of 30 industries, based on level and stability  
24. of returns. Within these ten industries, companies  
25. (with annual 1978 revenues above \$500 million) were  
26. selected on the basis of stability of returns during the  
27. last ten years, i.e., companies whose earnings exceeded  
28. or fell short of the average by more than one standard  
29. deviation were eliminated.<sup>1/</sup> This criterion was de-

30.  
31.

32. <sup>1/</sup> The standard deviation is a measure of the degree of  
33. dispersion of observations from the mean. Mathematically,  
34. it is the square root of the average of the squared devi-  
ations from the mean of the observed data.

1. signed to eliminate those companies whose earnings are  
2. chronically depressed and which do not meet the capital  
3. attraction standard, as well as those companies viewed  
4. askance by the Court in Bluefield as "highly profitable"  
5. enterprises. The final step was to array the companies  
6. by their coefficients of variation,<sup>1/</sup> and select those  
7. companies whose average ten-year coefficients of varia-  
8. tion (ending in 1978) matched the average of the 29 "Aa"  
9. rated electric utilities, namely, 11.8 percent. The average co-  
10. efficient of the 29 electric utilities was virtually identical to  
11. Houston Industries' coefficient of 11.7 percent. (A  
12. more detailed description of the selection of samples is  
13. contained in Appendix A to the statistical exhibit.)  
14.

15. While companies selected from stable industries are more  
16. likely to have greater similarity -- in terms of stabil-  
17. ity of demand -- with electric utilities than those  
18. chosen from all industries, the increasing diversifica-  
19. tion of many industrials may render the classification  
20. of corporate entities into a single industry of ques-  
21. tionable validity. This prompted the selection of my  
22. other three samples from all manufacturing industries,  
23. using essentially the same criteria as for the previ-  
24. ously described group.  
25.

26. Thus, in the selection of the second sample, the first  
27. step was to identify companies with 1978 annual revenues  
28. above \$500 million; next, companies whose earnings ex-  
29. ceeded or fell short of the average by more than one  
30.

31.  
32.  
33. <sup>1/</sup> The coefficient of variation is the standard deviation  
34. divided by the average.

1. standard deviation were eliminated. The remaining com-  
2. panies were then arrayed by their ten-year coefficients  
3. of variation, and companies with a median coefficient of  
4. variation equal to that of the 29 electric (or Houston  
5. Industries) were selected. Fifty-eight industrials met  
6. these criteria.

7.  
8. The third sample, comprising 46 companies, was selected  
9. from all manufacturing industries, and represents the  
10. lower 40 percent of the array of companies (by co f-  
11. ficients of variation) whose common stocks are ranked by  
12. Standard & Poor's as "A", which corresponds to the rank-  
13. ing of Houston Industries.

14.  
15. There are, of course, limitations to the selection of a  
16. sample based on stock rankings arising partly from dif-  
17. ferences in the standards used for stock rankings be-  
18. tween industrials and utilities, and partly from the  
19. fact that the rankings are partially based on the ex-  
20. periented level of earnings, thereby introducing an ele-  
21. ment of circularity. Nevertheless, since investors are  
22. to some extent guided by relative rankings, the rankings  
23. constitute a useful criterion for selection of compara-  
24. ble risk samples. However, the element of circularity  
25. prompted me to select a fourth sample comprising 58  
26. companies, based on common stock rankings of "A-" (with  
27. all other criteria identical to the third sample).

28.  
29. The returns of these four samples for the last three  
30. years are summarized below:

31.  
32.  
33.  
34.

	44 <u>Companies</u>	58 <u>Companies</u>	46 "A" <u>Ranked Co's.</u>	58 "A-" <u>Ranked Co's.</u>
1977-1979 avj.	15.4%	15.1%	16.0%	15.3%
1979	15.9	15.5	17.1	16.4

Source: Schedule 7.

The above data show earnings in the range of 15.1 to 16.0 percent for 1977-1979 and in the range of 15.5 to 17.1 percent for 1979.

Q. In selecting two of the four samples, you introduced a revenue criterion by selecting only those companies whose revenues were above \$500 million. Did you make any test to ascertain the impact of this criterion?

A. Yes, I tested the results by lowering the revenue criterion from \$500 million to \$250 million, and by dropping the revenue criterion altogether. The tests, described in Appendix A to the statistical exhibit, show that lowering the revenue criterion does not affect the results.

Q. Having used stability of return as a criterion of investment risk, would it be correct to conclude that greater instability is always associated with higher returns?

A. No. Risk is a prospective (ex ante) concept; instability can be measured only by reference to experienced (ex post) returns. The economic proposition is that those which have higher risks should have the opportunity to achieve higher returns. It is not that those which have high risks do in fact achieve higher returns. Stated

1. differently, if those which have high risks did in fact  
2. achieve high returns, they probably would not be viewed  
3. as risky. Thus, it is not surprising that those with  
4. greater variability do not always achieve a level of  
5. earnings that is commensurate with their risks.  
6.

7. Q. In selecting samples of industries on the basis of sta-  
8. bility, have you given consideration to the use of the  
9. beta factor?

10.

11. A. Yes. The beta factor measures either the relative price  
12. stability of a stock or (more correctly) the stability  
13. of the investor's total return (change in price plus  
14. dividends). Since the beta factor measures variability  
15. of returns in relation to market prices, I do not regard  
16. it as compatible with regulation on an original cost  
17. basis. Moreover, whether investors prefer stocks with a  
18. high or low degree of price stability depends on whether  
19. the market is rising or falling.

20.

21. Despite the above reservations, I shall examine whether  
22. the absence of a beta constraint in the selection of  
23. industrial samples might produce an upward bias in the  
24. results.

25.

26. Focusing first on the electric utilities, the individual  
27. company betas for the five-year periods ending 1973 and  
28. 1979 are set forth in Schedule 8. The median beta was  
29. .56 in 1973 and .76 in 1979. (All betas were computed  
30. by reference to total returns, i.e., relative changes in  
31. price plus dividends.)

32.

33. The increase in median betas may be an accurate reflec-  
34. tion of the increase in risk. However, the medians mask

1. a wide dispersion, summarized by the following table,  
2. relating to betas for the five-year period ending 1979:

	<u>Number of Companies</u>	<u>Range of Betas</u>
3.		
4.		
5.		
6.	10	.29 - .54
7.	16	.55 - .64
8.	12	.65 - .74
9.	21	.75 - .84
10.	10	.85 - .94
11.	6	.95 - 1.04
12.	8	1.05 - 1.14
13.	2	1.15 - 1.21

14. Source: Schedule 8.

15. There are undoubtedly differences in risks among elec-  
16. trics, but these differences are not of the magnitude  
17. suggested by the dispersion of betas. Moreover, an ex-  
18. amination of Schedule 8 shows that companies with quite  
19. similar risk have widely differing betas and that com-  
20. panies with different risks have similar betas. To il-  
21. lustrate, of the 85 utilities, 29 (excluding Houston  
22. Industries) have "Aa" bond ratings. Betas for ten of  
23. those 29 companies are below .65, for eight companies  
24. between .65 and .85, and for eleven companies above  
25. .85. Such dispersion casts doubt on the reliability of  
26. betas as a measure of risk.

27. Turning to the betas for the industrial companies, my  
28. analysis was specifically designed to determine whether  
29. the experienced returns on equity vary with betas. If  
30. such a correlation could be established, the absence of  
31. a beta constraint in the selection of industrial samples  
32. might produce an upward bias. The data indicate no re-  
33. lation between experienced returns and beta factors.

1. Schedule 9 sets forth the betas for the five-year period  
2. ending 1979) for 922 industrials, arrayed in intervals  
3. of 10 percentage points from 0.02 to 1.84, and the cor-  
4. responding returns on equity for 1976-1978. The data do  
5. not bear out the hypothesis that companies with low bet-  
6. as experience lower book returns than companies with  
7. high betas. Indeed, the median 1976-1978 returns for  
8. companies with betas below .65 were at a slightly higher  
9. level than those with betas of .95 - 1.15. It follows  
10. that beta is not an appropriate criterion for the selec-  
11. tion of industrial samples.

12.

13. Q. Houston Industries' beta is shown on Schedule 8 at 0.72  
14. for the five-year period ending 1979. How does it com-  
15. pare with the average beta of your sample of 58 indus-  
16. trials selected from all manufacturers with a stability  
17. of return equal to that of Houston Industries and the 29  
18. Aa rated electrics?

19.

20. A. The average beta for the 58 industrials was 1.06 for the  
21. five-year period ending 1979.

22.

23. Q. Assuming that you had used the beta factor as an addi-  
24. tional criterion of selection in such a manner as to  
25. produce a sample whose average beta was equal to that of  
26. Houston Industries, namely, 0.72, what would have been  
27. the impact on the 1977-1979 returns?

28.

29. A. The sample of 58 companies would have been reduced to 22  
30. companies. The average returns of those companies in  
31. 1977-1979 was 15.1 percent, identical to the average for  
32. the 58 companies. These data further demonstrate that  
33. the use of betas as a selection criterion would not have

1. significantly changed the result of my application of  
2. the comparable earnings test.

3.

4. Q. What conclusions do you draw from your analysis of the  
5. earnings experience of the different samples of indus-  
6. trials?

7.

8. A. The 1977-1979 earnings level of industrial companies of  
9. reasonably similar investment risk to Houston was about  
10. 15.5 percent; the current earnings level is above 16.0  
11. percent. I believe the prospective 1980-1981 earnings  
12. level lies below the current level, namely, at a level  
13. of approximately 15.5 percent.

14.

15. The acceptance of the results of the comparable earnings  
16. test as a measure of the return requirement for Houston  
17. is dependent on further comparative risk evaluations,  
18. made in connection with the financial integrity test.

19.

20.

21. b. The financial integrity test

22.

23. Q. What is your definition of financial integrity?

24.

25. A. In the context of regulation, I distinguish between two  
26. levels of financial integrity:

27.

28. First, there is a minimum level, which calls for earn-  
29. ings sufficient not only to achieve an appropriate cov-  
30. erage of fixed charges, but also -- provided stock mar-  
31. kets are reasonably stable and not unduly depressed --  
32. to permit a company to raise new equity capital without  
33. diluting the existing stockholders' investments. Nearly  
34. every firm -- even one whose capital is impaired -- can

1. attract equity capital if the integrity of the capital  
2. previously committed is disregarded and new equity is  
3. sold below book value  
4.  
5. Second, there is a level of financial integrity which is  
6. consistent with the opportunity cost principle and satis-  
7. fies both the comparable earnings and capital attraction  
8. tests. It is that level of earnings which is sufficient  
9. to maintain the value of the property at a level consis-  
10. tent with the values prevailing for industrial stocks of  
11. similar investment grade.  
12.  
13. Under either definition, attention to market-to-book  
14. ratios becomes an important aspect of determining the  
15. required return.  
16.  
17. Q. In the context of your first definition of financial  
18. integrity, please discuss interest coverage.  
19.  
20. A. While the relevant interest coverage, at the time of  
21. financing, is computed on a projected pro forma basis,  
22. for comparative purposes only experienced interest cov-  
23. erage data are available.  
24.  
25. The interest coverage (on a before-tax basis) of HL&P in  
26. 1979 was 3.77, including AFUDC, and 3.27 excluding AFUDC  
27. (Schedule 10).  
28.  
29. Interest coverage is a function of the level of return,  
30. the common equity ratio, the embedded cost of debt and  
31. preferred stock, and the effective tax rate. The impact  
32. of different returns on equity and effective tax rates,  
33. with a given capital structure and the cost of fixed  
34. income securities, is shown in the table below:

Pretax Coverage

	<u>Tax Rate</u>	<u>Common Equity Return</u>	<u>14.0%</u>	<u>16.0%</u>
4.	40	3.62		3.96
5.	46	3.91		4.29
7.	Given:			
8.	Debt	50%	Projected 1980	
9.	Preferred stock	7	cost of debt	8.4%
10.	Common equity	<u>43</u>	Embedded cost	
		100%	of preferred	8.23

To maintain "Aa" rating required an interest coverage of approximately 3.5 to 4.0. The above table shows that, based on an estimated prospective 1980 cost of debt, such coverages could be obtained at an achieved common equity return as low as 14.0 percent, which would obviously not be a compensatory return in the light of presently available alternative investment opportunities. Interest coverage is an important test for avoiding difficulties in financing debt, but rarely a standard of reasonable equity return.

Q. Would you now elaborate on the two levels of financial integrity?

A. The first relates to the necessity of avoiding placing a utility in a situation where it is faced with the need to raise new equity capital below book value. The second relates to permitting utilities to achieve a level of financial integrity commensurate with that of comparable risk industrials.

If the market price of a utility remains below book value for a long period of time, it constitutes prima

1. facie evidence of the inadequacy of earnings and the  
2. impairment of capital. I believe there is now general  
3. agreement among regulators that, if such a situation is  
4. allowed to prevail, it will raise the cost to the cus-  
5. tomer because the sale of new equity below book value  
6. will dilute the earnings per share and render the sale  
7. of new equity increasingly more costly.  
8.  
9. To have reasonable assurance of raising equity at book  
10. value, the market price needs to be about 10 percent  
11. above book value, because the sale of new stock entails  
12. underwriting costs, typically produces downward pressure  
13. on the stock, and should allow some leeway for unfore-  
14. seen market fluctuations.  
15.  
16. Q. Are you suggesting that the attainment of a market-to-  
17. book ratio of 110 percent be set as a standard of regu-  
18. lation?  
19.  
20. A. No. Such a standard violates the opportunity cost princi-  
21. ple, is unfair to investors, and contributes to raising  
22. the cost of capital.  
23.  
24. My concern with a standard of regulation whose goal is a  
25. market-to-book ratio slightly in excess of 100 percent  
26. may appear to be academic in times when the market value  
27. of virtually all electric) utilities lies considerably  
28. below book value. However, I believe the implicit adoption  
29. of such a standard by many commissions is partly respon-  
30. sible for the fact that utilities have not been able to  
31. maintain their financial integrity. When the attainment  
32. of a market-to-book ratio of slightly above 100 becomes a  
33. standard, it also becomes a ceiling, and creates risks in  
34. the minds of investors that will typically lead to a  
35. valuation of the stock below book value.

1. Investors do not buy the common stocks of utilities with  
2. the expectation of having the value of their capital  
3. limited to five or 10 percent above the nominal dollar  
4. value. Instead, they buy the stock with the expectation  
5. of maintaining a dividend income stream, hopefully in  
6. dollars of constant purchasing power, and achieving some  
7. capital gains. When a particular market-to-book ratio is  
8. used as a standard of regulation, as it is implicitly  
9. under the DCF method, the investor is saddled with the  
10. additional risk that he will be precluded from maintain-  
11. ing the value of his capital to the same degree as that  
12. achieved by competitive enterprises of similar risk.

13.  
14. If other enterprises -- particularly industrials which  
15. have risk characteristics similar to utilities -- are  
16. able to achieve a level of earnings which produces market  
17. prices considerably above book value, the alternative  
18. opportunity cost concept calls for permitting utilities  
19. an earnings opportunity that, if achieved, should produce  
20. approximately similar market-to-book ratios.

21.  
22. Such a standard does not, of course, impose on the Com-  
23. mission an obligation to "bail out" investors who have  
24. committed funds in earlier periods at higher prices, nor  
25. should the Commission strive to fix a return that will  
26. maintain a particular market price, since it has no con-  
27. trol over the factors that influence general market condi-  
28. tions.

29.  
30. Q. Has Houston Industries been able to maintain its finan-  
31. cial integrity?

32.  
33. A. Not since mid-1977. The market price of Houston's  
34. stock has been below book value in every quarter (with

1. one exception) during the last two years; moreover, despite  
2. a rise in the achieved return, the market-to-book ratio  
3. has been gradually declining, reaching an average of 82  
4. percent in the six months ending March 1980 (Schedule  
5. 11). The recent recovery of the stock to about \$29.00 in  
6. mid-June 1980 is still only 84 percent of the year-end  
7. 1979 book value. The company's financial integrity has  
8. therefore been impaired.  
9.

10. Q. Since the preponderance of other utilities are also selling  
11. below book value, is not Houston's predicament a temporary  
12. situation that will correct itself, as it did in 1975-1976?  
13.

14. A. The fact that other utilities' financial integrity has  
15. been impaired to the same or even greater degree than  
16. Houston merely attests to a potentially serious national  
17. problem. Some of the drop in market-to-book ratios can  
18. undoubtedly be explained by the prevailing credit strin-  
19. gency, and is similar to the situation encountered in  
20. 1974-1975. However, in my opinion, the situation is now  
21. more serious. The more frequently such impairments of  
22. financial integrity occur, the greater becomes the inves-  
23. tors' loss of confidence in utilities, which raises the  
24. prospective cost of equity. Investors are not unaware  
25. that the financial integrity of the industrial companies  
26. of similar basic investment risks to utilities (in terms  
27. of stability of earnings) has not been impaired.  
28.

29. Q. Despite these inadequate market-to-book ratios, have not  
30. investors done quite well over the last twenty years in  
31. Houston's stock?  
32.

33. A. No. I have made a study of investors' experienced  
34. returns -- defined as the sum of changes in market value

1. and reinvestment of dividends -- for the period 1960-1979.  
2. The results are set forth on Schedule 12 in the form of a  
3. "mileage chart", showing the experienced returns (before  
4. deduction of brokerage costs) from the purchase and sale  
5. of 100 shares of Houston (at annual average prices) for  
6. 190 different holding periods ranging from one to 19  
7. years.  
8.  
9. An analysis of the data for short holding periods shows  
10. that in only seven of the 19 one-year periods did the  
11. investor achieve a return over 10 percent; for three-year  
12. periods, the return exceeded 10 percent in only six of a  
13. possible 17 periods.  
14.  
15. Since utilities are typically viewed as a long-term invest-  
16. ment, the results for the longer periods are more meaning-  
17. ful. For five-year holding periods the investor's return  
18. exceeds six percent in only four out of a possible 15  
19. periods, and for ten-year holding periods, the highest  
20. return achieved out of a possible ten instances was 7.0  
21. percent.  
22.  
23. Q. You stated earlier that you intended to infer differences  
24. in risks from investors' market appraisals of utility  
25. equities. Would you please explain?  
26.  
27. A. A comparative analysis of market-to-book ratios provides,  
28. in my opinion, significant insight, though not a precise  
29. measure, into investors' appraisals of differential risk.  
30. The proposition stems from elementary financial theory,  
31. as observed in the bond market. Given identical coupon  
32. rates and dates of maturity, the riskier bonds will sell  
33. at lower prices than the higher grade bonds. Thus, differ-  
34. ences in market to face value reflect differences in

1. risks. Translated into the stock market, given identical  
2. earnings and expectations as to growth (or a trade-off  
3. between current yields and future growth), differences in  
4. market-to-book ratios may be said to reflect investor  
5. appraisals of differences in risk.  
6.
7. The relationship between earnings on book and market-to-  
8. book ratios is, of course, equivalent to earnings/price  
9. ratios [  $E/B \div P/B = E/P$  ]. The distinction between  
10. comparative analysis of earnings' price ratios and market-  
11. to-book ratios is that, while the former may provide an  
12. indication of differences in risks, the latter provide  
13. both an indication of relative risks (if all other fac-  
14. tors are equal) and the level of earnings necessary to  
15. achieve different degrees of maintenance of the value of  
16. capital assets.  
17.
18. The attempt to ascertain differences in risks (or inves-  
19. tor capitalization rates) from stock market data is, of  
20. course, subject to limitations, arising in part from the  
21. fact that stock prices may be subject to erratic gyrations,  
22. that factors other than earnings influence stock  
23. prices, and that growth expectations can only be inferred  
24. rather than measured. These are quite serious limitations  
25. for an analysis based on spot or quarterly stock  
26. market data, but they can be largely overcome by making  
27. the analysis over a sufficiently long period of time. In  
28. the long run, it is the level of earnings that supports  
29. market prices.  
30.
31. Q. Please proceed with such an analysis.  
32.
33. A. The principal purpose is to ascertain whether the samples  
34. of industrials selected for the purpose of applying the

1. comparable earnings test are in fact viewed by the invest-  
2. ment community as being of similar risk to high-grade  
3. electrics.  
4.  
5. The analysis will focus initially on the 44 and 58 com-  
6. panies, selected from all manufacturers, whose stability  
7. of earnings was identical to that of the 29 "Aa" elec-  
8. trics (and Houston Industries). I attach greater weight  
9. to these two groups because (1) the selection of a sample  
10. based on average stability of a group provides a more  
11. reliable basis than the stability indicator of any indivi-  
12. dual company, and (2) the industrials and utilities for  
13. which the comparison is made have experienced the same  
14. degree of stability.  
15.  
16. Since the stock market for utilities in 1974-1975 was  
17. characterized by erratic gyrations, it lacks the pre-  
18. requisite for an analysis of the relation between returns  
19. and market-to-book ratios.  
20.  
21. The years 1976-1979 were characterized by relative stabil-  
22. ity for utility prices, as illustrated by the fact that  
23. the quarterly average market-to-book ratios of the 29  
24. "Aa" utilities, although declining, were within the range  
25. of 89 to 108 percent (Schedule 12).  
26.  
27. For this four-year period, the average return of the 29  
28. electrics was 12.2 and the average market-to-book ratio  
29. 99 percent. By comparison the returns of the 58 and 44  
30. industrials averaged 14.8 and 15.0 percent; their corres-  
31. ponding market-to-book ratios were 117 and 121 percent.  
32. Thus, an approximately 22 percent higher return of the  
33. industrials was accompanied by a 20 percent higher market-  
34. to-book ratio. Allowing for the fact that small differences

1. in relative market-to-book ratios may be caused by differ-  
2. ences in expectations, in my opinion, these data warrant  
3. the inference that investors view these groups of indus-  
4. trials as being of similar risk to utilities.  
5.
6. Q. Does the fact that average returns of 12.2 percent for  
7. the 29 "Aa" utilities were able to produce average market-  
8. to-book ratios of approximately 100 percent indicate that  
9. a 12.5 percent return would have been sufficient to main-  
10. tain a minimum degree of financial integrity?  
11.
12. A. No. The preceding analysis concerned relative risks. It  
13. was made by reference to a nearly four-year period in  
14. order to mitigate the impact of spot conditions and market  
15. gyrations. But that analysis cannot be used to draw any  
16. conclusion as to the level of the required return, because  
17. it masks significant trends, particularly the decline in  
18. market-to-book ratios between 1977 and 1979, which is  
19. evidence of a rise in the cost of capital. A further  
20. rise took place in early 1980, which has not yet been  
21. reversed.  
22.
23. Q. What does a similar analysis show for Houston Industries?  
24.
25. A. While an analysis of the relation between earnings and  
26. market-to-book ratios made by reference to fairly large  
27. samples permits an appraisal of relative risks, it rarely  
28. yields equally reliable results for any individual com-  
29. pany (except for very large companies, such as AT&T),  
30. primarily because factors other than earnings have a  
31. significant impact on market price.  
32.
33. If one were to compare Houston's experience with that of  
34. the group of 29 "Aa" rated utilities, one would find

1. Houston's returns in 1976-1979 to have averaged 14.5  
2. percent and the market-to-book ratio 96 percent. Thus,  
3. Houston's return exceeded that of the group of 29 utili-  
4. ties (12.2 percent) by 19 percent, but its market-to-book  
5. ratio was three percent lower (Schedule 11). This com-  
6. parison suggests that Houston Industries incurred sub-  
7. stantially higher risks than the average of the 29 "Aa"  
8. rated utilities. In my opinion, such an inference would  
9. not be warranted without first considering investor expect-  
10. ations with respect to the impact of regulation.

11.  
12. In 1976 and 1977, Houston's relatively low market-to-  
13. book ratio in relation to its return was undoubtedly  
14. influenced by the uncertainty with respect to the allow-  
15. able level of return. After mid-1978, investors could  
16. reasonably expect an allowable return in the range of  
17. 14.0 - 15.0 percent, and achievable returns at a slightly  
18. lower level due to the impact of attrition. I am there-  
19. fore suggesting that Houston's achieved earnings level of  
20. 13.4 percent in 1978 corresponded to investor expecta-  
21. tions.

22.  
23. Based on that premise, a comparison between Houston and  
24. the group of 29 "Aa" rated electrics suggests that inves-  
25. tors regard Houston as being of considerably higher risk.  
26. Houston's 1978-1979 market-to-book ratio of 91 percent  
27. was slightly lower than the 94 percent ratio of the 29  
28. "Aa" electrics, but Houston's achieved return in 1978-1979  
29. of 13.85 percent was 14 percent higher than the 12.1  
30. percent return of the 29 "Aa" electrics (Schedule 11).

31.  
32. Having previously shown that the 29 "Aa" rated utilities  
33. are of approximately equal risks to my two samples of  
34. industrials (whose coefficients of variation are equal

1. to that of the 29 "Aa" electrics), the conclusion appears  
2. inescapable that Houston Industries is viewed by inves-  
3. tors as having greater risks. It follows that, to achieve  
4. the same degree of financial integrity, Houston requires  
5. a somewhat higher return than the average of the industrials.

6.  
7. Any conclusion with respect to investor appraisals de-  
8. rived from market data rests always on inferences. There  
9. is the possibility that the lower capitalization rates of  
10. other utilities is due to investors' expectation of rela-  
11. tively higher earnings growth for those utilities. I do  
12. not believe that possibility provides a plausible explana-  
13. tion, in light of Houston's lower payout ratio (see  
14. Section (c) below). Similarly, neither the difference in  
15. common equity ratios (Houston's equity ratio exceeds that  
16. of the average of other utilities) nor the quality of  
17. earnings (Houston's proportion of AFUDC does not exceed  
18. that of the other groups), nor the regulatory climate  
19. provide plausible explanations. The explanations for the  
20. investors' appraisal of Houston as a higher risk appear  
21. to stem from the Company's declining reserve margin and  
22. the concomitant need to raise very large amounts of capi-  
23. tal, which significantly increase the prospective risks.

24.  
25. These risk factors are largely, though not totally, beyond  
26. the Commission's control. If investors' concerns are  
27. irrational, they should be disregarded. But when they  
28. are based on rational considerations, then they can be  
29. alleviated through appropriate Commission action. Speci-  
30. fically, these risks can be reduced through the adoption  
31. of a regulatory framework geared to a forward test year,  
32. or the use of a past test year in conjunction with appro-  
33. priate normalizations for projected cost increases and  
34. inclusion of an adequate proportion of CWIP in the rate

1. base. My recommendation rests on the assumption that the  
2. Commission will take the latter step to reduce the Com-  
3. pany's risks.

4.

5. Q. What is your conclusion as to a reasonable equity return  
6. allowance for Houston Lighting & Power based on the com-  
7. parable earnings-financial integrity tests?

8.

9. A. With a prospective equity ratio of 43 percent, I conclude  
10. that a reasonable equity return allowance for Houston  
11. Lighting & Power is in the range of 15.75 to 16.0 percent.

12.

13. While my conclusion is, of course, influenced by the  
14. prospective earnings capacity of industrials, it makes  
15. only a small allowance of 0.25-0.5 percent for the fact  
16. that the investor views Houston's stock as having higher  
17. risks. Thus, it rests on the assumption that this risk  
18. differential will be eliminated by the Commission's inclu-  
19. sion of 85 percent of CWIP in the rate base, and such  
20. other adjustments to the cost of service as to reduce the  
21. risk of attrition.

22.

23. c. The capital attraction standard

24.

25. Q. Please explain the capital attraction standard.

26.

27. A. The capital attraction standard seeks to measure the  
28. current cost of capital required by investors to make an  
29. investment in plant expressed in today's purchasing power,  
30. as distinguished from the fair return related to a vintaged  
31. plant. After periods of prolonged inflation, the current  
32. cost of capital typically (but not always) lies below the  
33. fair return, for the reason that it does not take account  
34. of experienced inflation, which is partially reflected in

1. the comparable earnings technique. In periods of credit  
2. stringency or high inflationary expectations, the cost of  
3. attracting capital may rise above the level of past experi-  
4. enced earnings.

5.  
6. The estimation of the current cost of capital is made  
7. from stock market data. No matter how precise the mathe-  
8. matical formulation may be, all techniques of measuring  
9. the cost of attracting capital rest on inferences with  
10. respect to motivations governing investor expectations.  
11. There is no measure of investor expectations. The fact  
12. that stock prices are subject to erratic fluctuations,  
13. which may overshadow valuations of prospective growth,  
14. constitutes a further limitation.

15.  
16. (1) Earnings/price ratios

17.  
18. Q. Do you regard earnings/price ratios as a reliable measure  
19. of the cost of capital?

20.  
21. A. No. While both earnings and price may be measured for  
22. the same past time period, the price reflects the ex-  
23. pected earnings rate, which may be quite different from  
24. that achieved in the past. Thus, earnings/price ratios  
25. need to be adjusted for the degree to which investors'  
26. expectations as to prospective earnings differ from past  
27. earnings. A further adjustment needs to be made for  
28. financing and market pressure costs.

29.  
30. Despite these limitations, earnings/price ratios may,  
31. under certain conditions, provide a benchmark for the  
32. cost of capital. If the allowable return is achieved and  
33. is set at a level equal to a "bare bones" cost of capital  
34. (excluding financing costs and market pressure costs),

1. and the market price of the stock equals book value, then  
2. the earnings/price ratio will yield the same result as  
3. the discounted cash flow technique. However, if the  
4. market price of the stock is below book value, then earn-  
5. ings/price ratios will overstate the "bare bones" cost of  
6. capital.

7.  
8. One may postulate that investors in 1979 expected earn-  
9. ings of utilities not to fall below the then current  
10. level of earnings, on the theory that attrition from  
11. inflation would be offset by commissions allowing higher  
12. levels of return in recognition of the rise in oppor-  
13. tunity costs. On that hypothesis, the indicated "bare  
14. bones" cost of capital in 1979 for Houston Industries was  
15. 16.5 percent on an annual basis or 16.0 percent based on  
16. the average of the four quarters (Schedule 14). However,  
17. since Houston's market price fell short of book value by  
18. 15 percent the indicated 16.0-16.5 percent cost of capi-  
19. tal overstates the cost of attracting capital.

20.  
21. Since earnings/price ratios are not an accurate measure  
22. of the cost of capital, there is no need to refine these  
23. indicated costs. The data do, however, confirm the dis-  
24. tinct upward trend in the cost of attracting capital  
25. since 1977.

26.  
27. (2) The discounted cash flow technique

28.  
29. Q. Please summarize the conceptual underpinnings of the  
30. discounted cash flow approach.

31.  
32. A. Since the price of a security is the discounted value of  
33. the future stream of dividends (or other recoveries of  
34. value), the investor capitalization rate may be approximated

1. by the following formula: sum of the current dividend  
2. yield and the anticipated rate of growth in dividends or  
3. earnings.  
4.  
5. Since the DCF formula has been so frequently presented to  
6. the Commission, I shall omit the usual mathematical  
7. derivation.  
8.  
9. Like all techniques for the computation of the cost of  
10. capital, the DCF has some limitations. It rests on the  
11. propositions that (a) the projected rates of growth will  
12. continue to infinity or that the capitalization rates  
13. will not change over time and (b) that changes in rates  
14. of growth are compensated by changes in dividend yield,  
15. i.e., that the investor values a dollar of dividends as  
16. equal to a dollar of retained earnings. These proposi-  
17. tions are only partially valid.  
18.  
19. Despite these limitations, the cost of capital formula  
20. has gained widespread acceptance among investment and  
21. rate of return analysts, and has been used as an aid in  
22. determining the cost of equity capital, largely because  
23. it represents a theoretically accurate formulation of the  
24. current cost -- not the fair return -- of attracting  
25. capital, and because it satisfies the quest for mathe-  
26. matical precision which some believe obviates the need  
27. for reliance on judgment. It is perhaps obvious that it  
28. cannot be used without the exercise of considerable judg-  
29. ment, particularly with respect to the time period over  
30. which growth rates are computed, and the degree to which  
31. current dividend yields reflect uncertainties that future  
32. earnings growth will exceed or fall short of past growth.

1. Q. Should the cost of capital be measured solely by refer-  
2. ence to a particular regulated company?  
3.
4. A. In theory it should, because a company's own cost pre-  
5. sumably reflects its unique risks. Failure to analyze  
6. the unique risks of the subject company by focusing sole-  
7. ly on data relating to other companies cannot lead to an  
8. accurate measure of a company's own cost of capital.  
9. However, reliance on a particular company's indicated  
10. cost of capital involves a degree of circularity, because  
11. it ultimately implies that the regulatory body relies on  
12. investors' hunches about its own actions in setting  
13. rates.  
14.
15. Because of the possibility of circularity, I believe the  
16. results of the DCF technique applied to any one company  
17. should be tested by reference to a DCF computation for  
18. broader segments of the capital markets, including stable  
19. industrials.  
20.
21. Q. Please proceed with an explanation of the cost of capital  
22. computed by the DCF formula, focusing first on dividend  
23. yields.  
24.
25. A. Dividend yields are significantly affected by investors'  
26. anticipations with respect to growth and the company's  
27. payout ratio. At a given level of earnings, lower payout  
28. ratios will permit greater growth in earnings, and thus  
29. produce lower dividend yields.  
30.
31. Houston's payout ratio averaged 49.0 percent in 1975-  
32. 1979, and stood at 49.6 percent in 1978-1979. By com-  
33. parison, the average payout ratio of the 29 "Aa" rated  
34. utilities has been about 70 percent and for the indus-  
35. trials about 37 percent (Schedule 15)

1. Turning to dividend yields, Houston's dividend yield rose  
2. from 7.0 percent in 1978 to 8.0 percent in 1979 and 9.5  
3. percent in the first quarter of 1980 (Schedule 16). In  
4. mid-June 1980 it stood at about 9.5 percent.  
5.  
6. Houston's dividend yield has consistently been lower than  
7. that of other utilities, but higher than that of indus-  
8. trials, which is quite consistent with Houston's lower  
9. payout ratios in comparison with these other groups  
10. (Schedules 15-16).  
11.  
12. In view of my projection of lower interest rates, Hous-  
13. ton's current dividend yield overstates the prospective  
14. dividend yield which may reasonably be expected, on the  
15. assumption that the Commission will grant the Company's  
16. rate increase application.  
17.  
18. I estimate Houston's prospective dividend yield for mid-  
19. 1980-1981 at an average of 8.25 to 8.50 percent, which is  
20. quite close to the 8.35 percent average yield for the  
21. four quarters ending March 1980.  
22.  
23. Q. Turning now to growth rates, what technique have you used  
24. for the computation of growth rates?  
25.  
26. A. I have computed growth rates in per-share earnings, divi-  
27. dends, and book values on two bases: first, annual per-  
28. centage changes and, second, compound rates (on the basis  
29. of least squares) for a series of successive five-, seven-,  
30. and ten-year periods. In view of the sensitivity and  
31. variability of the data, the chances of drawing a reason-  
32. able inference as to investor expectations are improved  
33. by looking to successive (and partly overlapping) periods.

1. While investors are interested in dividends, growth in  
2. dividends is dependent on managerial policies with re-  
3. spect to payout ratios, which are dependent on earnings.  
4. I have also computed growth in book value, primarily  
5. because growth in book value usually shows far greater  
6. stability over time.  
7.  
8. Any analysis of growth rates for utilities must start  
9. with an awareness that when the level of earnings is  
10. depressed and below the cost of capital -- as indicated  
11. by the fact that the market prices have consistently been  
12. below book value for quite a few years -- the growth  
13. rates for periods ending in those years are most likely  
14. to also be depressed, and hence unrepresentative of inves-  
15. tors' future expectations.  
16.  
17. The DCF theory rests on the proposition that the dividend  
18. yield rises to compensate for small or even negative  
19. growth rates. There is undoubtedly a tendency in that  
20. direction, but it does not fully compensate for the de-  
21. cline in growth rates, because investors do not expect a  
22. depressed level of earnings to continue indefinitely.  
23. Instead, they typically believe that commissions will  
24. ultimately remedy such situations and adopt regulatory  
25. techniques which will permit utilities to earn their cost  
26. of capital and achieve close to the allowable return. It  
27. follows that the dividend yield in those situations re-  
28. flects an expectation of a higher growth rate than that  
29. experienced in times of depressed earnings. To take the  
30. view that the dividend yield compensates for unduly low  
31. growth rates is to assume, in effect, that the depressed  
32. level of earnings will be perpetuated.

1. Q. What is your analysis of Houston's experienced growth  
2. rates?

3.

4. A. A review of annual growth rates in earnings shows such  
5. wide fluctuations from one year to the next (Schedule 17)  
6. as to permit no reasonable inference as to investor ex-  
7. pectations. With respect to growth in dividends, the  
8. annual data show an upward trend, with a ten-year average  
9. ending in 1979 of 7.8 percent and a five-year average of  
10. 9.6 percent. In my opinion, these averages overstate  
11. prospective dividend increases because they reflect the  
12. rise in payout ratios of recent years.

13.

14. The annual growth in book value data show a ten-year  
15. average of 7.9 percent, a five-year average of 6.2 per-  
16. cent, and a three-year average of 7.0 percent. In my  
17. opinion, the latter, 6.2 percent and 7.0 percent, under-  
18. state investors' growth expectations because it assumes  
19. that the longer term prospective growth in earnings and  
20. dividends will be constrained or adversely affected by  
21. sales of stock below book value. I reject that premise  
22. because it implies that investors expect the Commission  
23. to adopt regulatory techniques that would deprive the  
24. Company of a reasonable opportunity to achieve a return  
25. equivalent to its cost of capital. In my opinion, that  
26. is not a reasonable premise.

27.

28. The annual growth in retained earnings show a ten-year  
29. average of 7.5 percent, a five-year average of 7.4 per-  
30. cent, and a three-year average of 7.6 percent. The aver-  
31. ages for the recent period reflect, of course, the impact  
32. of the Commission's allowable returns, as well as the  
33. impact of the more rapid growth in earnings from non-  
34. utility operations. If one were to focus only on Houston

1. Lighting & Power, the average growth in retained earnings  
2. both on a five- and three-year basis would be reduced to  
3. 7.0 percent.

4.  
5. Turning now to the compound rates of growth computed on  
6. the basis of least squares for successive periods and  
7. focusing first on earnings and dividends per share, I  
8. regard the longer term, particularly the ten-year periods,  
9. as most significant. The data show growth rates for  
10. earnings in the range of 6.4 to 7.1 percent; the 10-year  
11. dividend growth rates show a distinct upward trend, rang-  
12. ing from 5.3 to 7.1 percent.

13.  
14. With respect to growth in book value, the ten-year data  
15. show a range of 8.2 to 8.5 percent, which are overstated  
16. due to the sale of new stock above book value in earlier  
17. years; the five-year data show a decline from 8.6 to 6.6  
18. percent, which, as previously noted, are understated  
19. because they reflect the sale of stock below book value  
20. (Schedule 18).

21.  
22. Q. What is your conclusion with respect to investors' growth  
23. rate expectations and the current cost of attracting  
24. capital?

25.  
26. A. I conclude that a longer-term growth rate for Houston  
27. Industries total operations is no less than 7 percent,  
28. but that the growth rate for utility operations is in the  
29. range of 6.5 to 6.75 percent.

30.  
31. Based on a projected dividend yield of 8.25 to 8.50 and a  
32. growth rate of 6.5 to 6.75 percent (and matching the  
33. lower growth with the upper end of the range for dividend  
34. yields), I estimate the current "bare bones" cost of

1. capital at 15.0 percent, excluding financing costs and  
2. market pressure. By comparison, my current cost estimate  
3. in the 1979 proceeding was 14.0-14.25 percent. I there-  
4. fore conclude that the approximately 100 basis point rise  
5. in interest rates (viewed prospectively in relation to  
6. the levels forecast in 1979) has raised the cost of  
7. attracting capital by 75-100 basis points.  
8.
9. I regard the 15.0 percent "bare-bones" cost estimate as  
10. conservative, not because of any intention to understate  
11. the cost, but rather due to the fact that it incorporates  
12. a downward adjustment to the growth rate for the impact  
13. of diversification on Houston Industries' total profit-  
14. ability, without making any upward adjustment to the  
15. dividend yield portion. Investors are obviously aware  
16. of the impact of Houston Industries' diversification, but  
17. I have no basis for ascertaining the degree to which the  
18. prospect of higher earnings from diversification has  
19. raised the price of the stock.  
20.
21. Q. You stated that you intended to test the cost of capital  
22. computation for Houston Industries by reference to the  
23. cost of attracting capital for other groups. What is  
24. your estimate of the cost of capital for the group of 44  
25. and 58 companies selected on the basis of stability of  
26. return similar to Houston Industries and the 29 "Aa"  
27. rated electrics?  
28.
29. A. The dividend yields of the industrials showed only a  
30. small rise during 1979, from about 5.3-5.4 percent in the  
31. first quarter to 5.7-5.8 percent in the last quarter  
32. (Schedule 16). I estimate the prospective median yield  
33. in the range of 5.0-5.5 percent.

1. Turning to growth rates, it may be recalled that, in  
2. estimating the prospective returns of the industrials, I  
3. did not give full weight to the 1979 returns, because I  
4. believe they will not be sustained in the near-term future.  
5. Hence, to avoid an overstatement of growth rates, I shall  
6. omit discussion of 1979 growth data.

7.  
8. Investors in industrials are primarily interested in  
9. earnings growth. The data show a clearly rising trend to  
10. levels in the range of 10.2 to 10.3 percent for the ten-  
11. year periods ending 1978 (Schedule 19). Since these  
12. growth rates were achieved partly through a reduction in  
13. payout ratios (from about 46 percent at the beginning of  
14. the decade to about 37 percent in 1973), past growth in  
15. earnings rates may overstate prospective growth rates.  
16. However, despite the decline in payout ratios, there was  
17. a clear upward trend in the dividend growth rates to a  
18. range of 6.1 to 6.8 percent for the ten-year periods, 8.1  
19. to 8.5 percent for the seven-year periods, and 9.2 to 9.5  
20. percent for the five-year periods ending 1978.

21.  
22. The growth rates in book value are within a relatively  
23. narrow range of 8.0 to 9.5 percent for the periods ending  
24. 1978. Giving the greatest weight to growth in dividends,  
25. I estimate the prospective growth at about 9.0 percent.

26.  
27. I therefore conclude that the "bare bones" current cost  
28. for these industrials is approximately 14.0- 14.5 percent.

29.  
30. Q. What is your estimate of the cost of attracting capital  
31. for the utilities?

32.  
33. A. Focusing first on the 29 "Aa" rated electrics, their  
34. dividend yields rose from 8.8 percent in 1978 to 10.0

1. percent in 1979 and 12.2 percent in the first quarter. I  
2. estimate the prospective yield at 10.5-11.0 percent,  
3. which is quite close to the average yield of 10.6 percent  
4. for the four quarters ending March 1980. This is con-  
5. sistent with my estimate for Houston Industries.

6.  
7. With respect to growth, the 10-year growth rates in earn-  
8. ings were in the range of 3.0-3.7 percent. The five-year  
9. growth in dividends show an upward trend to 4.8 percent;  
10. the 10-year growth rates were in the range of 3.3 to 4.4  
11. percent; the 10-year growth in book value was in the  
12. range of 3.9 to 4.6 percent. These data lead me to pro-  
13. ject a growth rate in the range of 3.5 to 4.0 percent.  
14. The "bare bones" total cost of capital is therefore approxi-  
15. mately 14.5 percent, somewhat below that of Houston.

16.  
17. The seven Texas utilities show an average dividend yield  
18. for the four quarters ending March 1980 of 10.3 percent.  
19. Their ten-year growth in earnings was in the range of 5.2  
20. to 6.0 percent; the five-year growth in dividends shows a  
21. generally rising trend to about 5.0 percent and the ten-  
22. year growth in book value in the range of 5.6 to 6.0  
23. percent. I conclude that the prospective growth is about  
24. 4.5 to 5.0 percent, so that the "bare bones" cost of  
25. capital is in the range of 14.8 to 15.3 percent, quite  
26. close to that of Houston Lighting & Power.

27.  
28. The above data confirm the fact that the greater prospec-  
29. tive growth in capital expenditures of the Texas com-  
30. panies is perceived by investors as carrying greater  
31. risk, and hence produces a higher investor return require-  
32. ment.

1. Q. Returning to Houston Industries, what is your estimate of  
2. the cost of financing, market pressure, and the allowance  
3. for market volatility?  
4.

5. A. Houston's financing costs for its last four common stock  
6. issues ranged from 2.8 to 3.5 percent. I shall use a 3.0  
7. percent estimate as representative of prospective conditions.  
8.

9. Market pressure is the impact of a new stock issue on the  
10. price of the stock. Market pressure varies widely over  
11. the course of the business cycle. The statistically  
12. measurable market pressure<sup>1/</sup> for Houston's last four  
13. issues was 2.5, 2.6, 4.7, and 4.1 percent, respectively.  
14. I estimate the prospective market pressure at 4.0 percent.  
15.

16. Thus, I estimate the sum of financing costs and market  
17. pressure at 7.0 percent. There should also be an allow-  
18. ance for unpredictable market swings of at least 3.0  
19. percent, so that the total cost is about 10 percent.  
20.

21. Considerable controversy has arisen in recent years over  
22. whether the financing costs and market pressure should be  
23. applied to the total cost of equity capital. Some con-  
24. tend that they should be applied only to the dividend  
25. yield portion of the cost; others that they should be  
26. applied only to funds raised externally.  
27.

28.

29.

30.

31. <sup>1/</sup> Difference between offering price and average of the  
32. market price of the stock seven to 12 weeks before and after  
33. the offering date, adjusted for trend, measured by reference  
34. to the S&P Composite Electric Power Price Index. For the last  
issue (April 1980), the 4.1 percent reflects only the indi-  
cated pressure before the issue date.

1. In my opinion, financing and market pressure costs should  
2. be applied to the total cost of equity capital. The con-  
3. cept of the capital attraction standard implies the cost  
4. of raising the utility's capital de novo. If these financ-  
5. ing and market pressure costs were applied only to that  
6. portion of funds raised externally, companies with dif-  
7. ferent payout ratios would receive different returns.  
8. Moreover, such a policy would penalize retention of earn-  
9. ings and constitute an inducement to management to approach  
10. 100 percent dividend payout ratios, which is not desir-  
11. able in the foreseeable future.

12.  
13. However, since the issue is one on which there may be  
14. reasonable differences of opinion, and in the interests  
15. of avoiding controversy, I shall apply the 10 percent  
16. flotation costs only to the dividend yield of 8.25-8.50  
17. percent, so that the allowance for financing costs is  
18. about 0.9 percent.

19.  
20. Q. What is your conclusion as to the total current cost of  
21. attracting capital for Houston?

22.  
23. A. The total current cost is therefore 15.9 percent, reflect-  
24. ing an investor return requirement of 15.0 percent, and  
25. an allowance for financing costs of 0.9 percentage points.

26.  
27. Thus, the cost of attracting capital, which typically  
28. lies below the fair return, because it does not provide  
29. for partial compensation for experienced inflation re-  
30. flected in the comparable earnings test, is prospectively  
31. close to the upper end of the range, namely, 16.0 percent,  
32. required by the comparable earnings-financial integrity  
33. test.

34.

## APPENDIX A

### Summary of Qualifications of Stephen F. Sherwin

I hold the degrees of Bachelor of Business Administration (1949), Master of Business Administration (1951), and Ph.D. in Economics (1956), all from the University of Wisconsin. My fields of study were Accounting, Economics, Finance, and Public Utilities.

After completing my graduate studies, I was an instructor in Economics at New York University. I have also been a guest lecturer at Penn State University and The George Washington University.

In 1956 I joined Foster Associates, Inc. During the last twenty-four years I have been a consultant to both industry and government. In the course of these consulting activities, I have made numerous studies on the cost of capital and reasonable earnings requirements for airlines, electric and gas distribution utilities, natural gas pipelines, telephone companies, and water companies. I have also made studies of the economics and cost characteristics of the oil and gas industry, on selected aspects of taxation, on postal economics, and the securities industry.

The results of many of those studies have been presented as testimony before regulatory agencies in over forty proceedings in the United States and Canada.

In the United States, I submitted rate of return evidence before the Civil Aeronautics Board (Braniff, Continental,

National, and Western Airlines); the Federal Energy Regulatory Commission (South Carolina Electric & Gas and Great Lakes Gas Transmission); the Public Service Commissions of Florida (Tampa Electric and General Telephone of Florida), Maryland (Baltimore Gas & Electric), Michigan (Michigan Consolidated Gas), Missouri (Laclede Gas), New York (St. Lawrence Gas), North Carolina (Duke Power), Ohio (Dayton Power & Light), South Carolina (South Carolina Electric & Gas), Texas (Houston Lighting & Power), Virginia and West Virginia (Chesapeake & Potomac Telephone Companies, AT&T subsidiaries); before the Securities and Exchange Commission (for the National Association of Securities Dealers) on the subject of reasonable sales charges for mutual funds; before the Interstate Commerce Commission and the Postal Rate Commission (for the U. S. Postal Service and two mailers' trade associations) on the costing and pricing of postal services; and before the Federal Power Commission (for Exxon, Gulf, Mobil, Texaco, and other oil companies) in twelve proceedings (including the Permian Basin and Area Rate proceedings) concerned with the costing and pricing of natural gas at points of production.

In Canada, I have submitted rate of return evidence during the last five years in more than twenty proceedings before the National Energy Board (TransCanada PipeLines and Westcoast Transmission), British Columbia Energy Commission (Pacific Northern Gas), the Ontario Energy Board (Consumers' Gas and Union Gas), the Public Utility Boards of Alberta (Alberta Power, Canadian Western Natural Gas, and Northwestern Utilities), Manitoba (Greater Winnipeg Gas), and Quebec (Gazifere de Hull).

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Before the  
Public Utility Commission of Texas

Houston Lighting & Power Company

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Statistical Material to Accompany  
Rate of Return Testimony  
of  
Stephen F. Sherwin

Foster Associates, Inc.  
Washington, D. C. 20036

June 1980

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INFLATION RATE AS MEASURED BY ANNUAL INCREASE  
IN IMPLICIT PRICE INDEX BY QUARTERS

(Percent)

<u>Year</u>	<u>First Quarter</u> (1)	<u>Second Quarter</u> (2)	<u>Third Quarter</u> (3)	<u>Fourth Quarter</u> (4)
1964	1.35	1.63	1.89	1.40
1965	1.94	2.11	2.24	2.52
1966	2.71	3.39	3.30	3.75
1967	3.32	2.49	2.88	3.11
1968	3.82	4.64	4.59	4.85
1969	4.64	4.79	5.45	5.28
1970	5.72	5.65	4.97	5.10
1971	5.11	5.30	5.22	4.72
1972	4.62	3.89	3.90	4.17
1973	4.18	5.23	6.26	7.50
1974	8.15	9.26	10.27	11.01
1975	11.57	10.15	9.08	7.50
1976	5.83	5.53	4.84	4.72
1977	5.23	5.97	6.13	6.22
1978	6.30	7.02	7.62	8.19
1979	8.96	8.61	8.96	8.87
1980	8.86			

Source: United States Department of Commerce; Survey of Current Business; Business Statistics; Commerce News.

TRENDS IN BOND YIELDS AND INTEREST RATES  
(Percent Per Annum)

Period	Yields on Outstanding Issues									
	U.S. Government Long-Term Bonds <sup>a/</sup>	3-Month U.S. Treasury Bills <sup>b/</sup>	Utility Bonds (Moody's)				Industrial Bonds-Aa (Moody's)	Municipal Bonds (Standard & Poor's)	Prime Rate <sup>c/</sup>	New York Federal Reserve Bank Discount Rate <sup>d/</sup>
	(1)	(2)	Aaa (3)	Aa (4)	A (5)	Baa (6)	(7)	(8)	(9)	(10)
1960	4.06%	2.93%	4.47%	4.53%	4.78%	4.97%	4.39%	3.73%	4.50%	3.53%
1961	3.92	2.38	4.37	4.46	4.52	4.83	4.33	3.46	4.50	3.00
1962	3.99	2.78	4.35	4.41	4.54	4.75	4.30	3.78	4.50	3.00
1963	4.05	3.16	4.27	4.32	4.39	4.67	4.29	3.23	4.50	3.23
1964	4.19	3.55	4.42	4.44	4.52	4.74	4.41	3.22	4.50	3.55
1965	4.27	3.95	4.50	4.52	4.58	4.78	4.50	3.27	5.00	4.04
1966	4.77	4.68	5.19	5.25	5.39	5.60	5.15	3.62	6.00	4.50
1967	5.01	4.32	5.58	5.66	5.87	6.15	5.55	3.98	6.00	4.12
1968	5.45	5.34	6.22	6.35	6.51	6.87	6.24	4.51	6.75	5.29
1969	6.33	6.68	7.12	7.34	7.54	7.93	7.05	5.81	8.50	5.88
1970	6.86	6.46	8.31	8.52	8.69	9.18	7.94	6.51	6.75	5.94
1971	6.12	4.35	7.72	8.00	8.16	8.63	7.23	5.70	5.25	4.85
1972	6.01	4.07	7.46	7.60	7.72	8.17	7.11	5.27	6.00	4.50
1973	7.12	7.04	7.60	7.72	7.84	8.17	7.40	5.18	9.75	6.44
1974	8.05	7.89	8.71	9.04	9.50	9.84	8.64	6.09	10.50	7.83
1975 1Q	7.86	5.87	8.87	9.28	10.03	11.28	8.69	6.52	8.98	6.85
2Q	8.21	5.40	9.03	9.44	10.13	10.89	8.92	6.80	7.32	6.12
3Q	8.41	6.34	9.15	9.51	10.11	10.85	8.96	7.06	7.56	6.00
4Q	8.29	5.68	9.08	9.50	10.10	10.82	9.02	7.16	7.58	6.00
1976 1Q	8.00	4.95	8.80	9.22	9.76	10.34	8.87	6.86	6.83	6.00
2Q	8.01	5.17	8.72	9.04	9.54	9.95	8.76	6.78	6.90	5.50
3Q	7.90	5.17	8.66	8.85	9.13	9.67	8.49	6.37	7.09	5.50
4Q	7.55	4.70	8.35	8.55	8.72	9.32	8.32	5.95	6.54	5.39
1977 1Q	7.62	4.62	8.21	8.45	8.65	9.19	8.01	5.74	6.25	5.25
2Q	7.68	4.83	8.18	8.46	8.67	9.11	8.04	5.59	6.47	5.25
3Q	7.60	5.47	8.10	8.33	8.49	8.91	7.95	5.44	6.90	5.42
4Q	7.78	6.14	8.25	8.49	8.63	9.05	8.18	5.46	7.67	5.93
1978 1Q	8.19	6.41	8.55	8.78	8.96	9.31	8.48	5.53	7.98	6.46
2Q	8.43	6.48	8.81	9.02	9.24	9.67	8.65	5.94	8.30	6.78
3Q	8.54	7.32	8.91	9.15	9.37	9.58	8.81	6.03	9.14	7.50
4Q	8.78	8.68	9.19	9.43	9.61	9.92	9.00	6.10	10.81	9.08
1979 1Q	9.03	9.35	9.53	9.77	9.92	10.36	9.27	6.20	11.75	9.50
2Q	9.08	9.37	9.60	10.02	10.18	10.60	9.42	6.07	11.71	9.50
3Q	9.03	9.63	9.52	9.80	10.16	10.58	9.34	6.18	12.11	10.21
4Q	10.18	11.80	10.77	11.29	11.69	12.29	10.58	7.08	15.08	11.92
1980 Jan.	10.65	12.04	11.33	11.95	12.27	12.92	11.16	7.21	15.25	12.00
Feb.	12.21	12.81	12.75	13.19	13.55	14.42	12.26	8.04	15.63	12.52
Mar.	12.49	15.53	13.33	14.09	14.65	15.26	12.93	9.09	18.31	13.00
Apr.	11.42	14.00	12.27	13.49	13.87	14.35	12.63	8.40	19.77	13.00
May	10.44	9.15	11.23	11.99	12.53	12.93	11.82	7.37	16.57	12.94

<sup>a/</sup> 20-year constant maturities. Series represents yields on the more actively traded issues adjusted to constant maturities by the U.S. Treasury, based on daily closing bids.

<sup>b/</sup> Rate on new offerings.

<sup>c/</sup> Annual data represent the rate in effect at year-end; monthly data are the average rates for the month.

<sup>d/</sup> Average rates.

Source: Federal Reserve Board, Federal Reserve Bulletin and Statistical Releases, Annual Statistical Digest; Moody's Investors Service, Inc.; Standard & Poor's Trade & Securities Statistics; Outlook.

YIELDS ON MOODY'S NEWLY ISSUED  
PUBLIC UTILITY BONDS

(Percent Per Annum)

<u>Period</u>	<u>Aaa</u> (1)	<u>Aa</u> (2)	<u>A</u> (3)	<u>Baa</u> (4)
1960	4.77	4.78	5.02	5.33
1961	4.51	4.59	4.73	5.10
1962	4.36	4.34	4.45	4.75
1963	4.31	4.34	4.41	4.64
1964	4.46	4.46	4.55	4.74
1965	4.57	4.62	4.70	4.95
1966	5.44	5.57	5.76	5.98
1967	5.85	5.98	6.18	6.28
1968	6.57	6.72	6.90	7.11
1969	7.75	7.88	8.07	8.54
1970	8.52	8.74	9.15	9.68
1971	7.58	7.70	7.97	8.33
1972	7.34	7.42	7.56	7.89
1973	7.75	7.82	8.00	8.18
1974	9.16	9.47	9.89	9.14
1975 1Q	8.86	9.14	9.76	--
2Q	9.09	9.64	10.27	10.90
3Q	9.24	9.70	10.66	11.57
4Q	9.38	9.58	10.29	11.54
1976 1Q	8.52	8.81	9.12	9.67
2Q	8.54	8.93	9.18	9.81
3Q	8.12	8.56	9.06	9.78
4Q	8.15	8.31	8.47	8.90
1977 1Q	8.24	8.24	8.43	8.85
2Q	8.12	8.32	8.56	8.86
3Q	8.04	8.23	8.40	8.59
4Q	8.27	8.41	8.57	9.07
1978 1Q	8.72	8.84	8.94	9.44
2Q	8.90	9.15	9.28	9.70
3Q	8.82	9.13	9.16	9.88
4Q	9.18	9.47	9.48	9.75
1979 1Q	9.54	9.86	9.95	10.37
2Q	9.48	9.92	10.17	10.68
3Q	9.76	9.70	10.12	10.99
4Q	10.83	11.80	12.26	12.76
1980 Jan.	11.47	12.56	12.51	--
Feb.	12.70	13.63	15.15	--
Mar.	14.20	14.99	15.04	15.56
Apr.	12.15	12.70	14.54	14.67
May	11.79	12.00	11.77	--

Source: Moody's Investors Service, Inc.

TRENDS IN PREFERRED STOCK YIELDS <sup>a/</sup>  
(Percent Per Annum)

Year	Moody's Public Utilities		Moody's Industrials		
	High Grade	Medium Grade	High Grade	Medium Grade	
	(1)	(2)	(3)	(4)	
1960	4.85	5.06	4.48	4.80	
1961	4.71	4.90	4.36	4.68	
1962	4.52	4.74	4.21	4.60	
1963	4.38	4.58	4.04	4.41	
1964	4.49	4.68	4.05	4.38	
1965	4.53	4.72	4.07	4.38	
1966	5.19	5.41	4.67	4.95	
1967	5.54	5.77	5.13	5.39	
1968	6.07	6.28	5.62	5.83	
1969	6.76	6.91	6.15	6.38	
1970	7.56	7.78	7.03	7.25	
1971	7.10	7.36	6.55	6.84	
1972	7.23	7.43	6.56	6.85	
1973	7.56	7.78	6.65	7.01	
1974 1Q	8.00	8.41	6.91	7.40	
2Q	8.84	9.31	7.24	8.06	
3Q	10.05	10.61	7.81	8.44	
4Q	10.15	11.21	7.95	8.65	
1975 1Q	9.21	10.48	7.64	8.07	
2Q	9.52	10.84	7.87	8.06	
	aa	a	baa		
	Rated	Rated	Rated		
1975 3Q	9.52	10.52	10.93	7.97	8.26
4Q	9.35	10.25	10.68	7.83	8.33
1976 1Q	8.82	9.46	9.69	7.50	7.90
2Q	8.86	9.39	9.72	7.47	7.88
3Q	8.70	9.24	9.62	7.30	7.78
4Q	8.45	8.91	9.25	7.21	7.68
1977 1Q	8.27	8.79	9.00	7.09	7.43
2Q	8.11	8.57	8.99	7.17	7.49
3Q	7.96	8.28	8.74	7.07	7.38
4Q	8.12	8.55	8.99	7.15	7.47
1978 1Q	8.35	8.74	9.19	7.35	7.61
2Q	8.65	9.11	9.56	7.72	7.87
3Q	8.60	8.94	9.64	7.80	8.25
4Q	8.77	9.32	10.02	8.18	8.71
1979 1Q	9.09	9.63	10.37	8.12	8.79
2Q	9.13	9.72	10.58	8.24	9.04
3Q	9.22	9.89	10.60	8.45	9.00
4Q	10.71	11.37	12.29	9.34	9.79
1980 Jan.	10.96	11.79	12.74	9.37	9.76
Feb.	11.58	14.65	14.08	9.81	10.28
Mar.	13.09	14.74	15.22	10.33	11.02
Apr.	11.67	12.22	13.13	10.14	10.65
May	10.80	11.69	12.29	9.70	10.38

<sup>a/</sup> Yields are based on prices for the last Friday of each month.

Source: Moody's Investors Service, Inc.

## TRENDS IN AFTER-TAX CORPORATE PROFITS

Year	Billions of Dollars (1)	Corporate Profits As A Percent of	
		Gross National Product (2)	National Income (3)
<u>Annual</u>			
1960	\$25.8	5.1%	6.3%
1961	25.8	4.9	6.1
1962	29.6	5.3	6.5
1963	31.5	5.3	6.5
1964	36.7	5.8	7.1
1965	44.3	6.4	7.8
1966	47.1	6.3	7.6
1967	44.9	5.6	6.8
1968	46.2	5.3	6.5
1969	43.8	4.7	5.7
1970	37.0	3.8	4.6
1971	44.3	4.2	5.2
1972	54.6	4.7	5.7
1973	67.1	5.1	6.3
1974	74.5	5.3	6.6
1975	70.6	4.6	5.8
1976	92.2	5.4	6.8
1977	104.5	5.5	6.8
1978	121.5	5.7	7.0
1979	144.1	6.1	7.5
<u>Quarterly</u> <sup>a/</sup>			
1974-1Q	70.9	5.2	6.4
2Q	72.8	5.2	6.5
3Q	81.0	5.7	7.1
4Q	73.5	5.1	6.3
1975-1Q	59.6	4.1	5.2
2Q	64.6	4.3	5.4
3Q	78.1	5.0	6.3
4Q	80.3	5.0	6.3
1976-1Q	89.0	5.4	6.7
2Q	92.4	5.5	6.9
3Q	92.9	5.4	6.8
4Q	93.2	5.3	6.6
1977-1Q	99.2	5.4	6.8
2Q	103.7	5.5	6.9
3Q	107.2	5.6	6.9
4Q	107.9	5.5	6.8
1978-1Q	106.7	5.3	6.6
2Q	122.4	5.8	7.2
3Q	124.6	5.8	7.1
4Q	132.3	5.9	7.3
1979-1Q	142.0	6.2	7.6
2Q	139.3	6.0	7.3
3Q	148.3	6.2	7.6
4Q	146.9	6.0	7.4
1980 1Q	155.5	6.2	7.7

<sup>a/</sup> At annual rates.

Source: U.S. Department of Commerce: Business Statistics, Survey of Current Business, Commerce News.

CAPITAL STRUCTURE RATIOS FOR  
SELECTED UTILITIES AND INDUSTRIALS

Year-End 1978

	<u>Long-Term Debt</u> (1)	<u>Preferred Stock</u> (2)	<u>Common Stock Equity</u> (3)
<u>Utilities</u>			
Houston Lighting & Power			
1979	50.5%	8.3%	41.2%
1978	52.5	8.3	39.2
41 Electric Utilities	50.4	13.0	36.6
29 "Aa" Rated Electric and Electric-Gas Utilities	48.7	13.5	37.8
85 Electric and Electric- Gas Utilities	50.0	13.0	37.0
7 Texas Electric Utilities	50.8	10.6	38.6
Class A&B Electric Utilities	50.2	12.2	37.6
<u>Industrials</u>			
Ten Stable Industries:			
44 Industrials	20.1	1.0	78.9
All Manufacturing Industries:			
58 Industrials	23.5	1.1	75.4
46 "A" Ranked Industrials	21.6	1.0	77.4
58 "A-" Ranked Industrials	24.4	0.5	75.1

Source: Annual Reports to Stockholders; Standard & Poor's Compustat Services, Inc.; Department of Energy, Statistics of Privately Owned Electric Utilities in the United States. For identification of companies, see Appendix B.

RATES OF RETURN ON AVERAGE COMMON STOCK EQUITY  
FOR SELECTED INDUSTRIALS

Year	Ten Stable Industries	All Manufacturing Industries		S&P 400 Industrials	
	44 Industrials (1)	58 Industrials (2)	46 "A" Ranked Industrials (3)		58 "A-" Ranked Industrials (4)
1969	13.8%	13.6%	13.1%	13.8%	12.0%
1970	13.3	13.0	12.8	12.9	10.4
1971	13.3	12.9	11.9	12.3	11.1
1972	13.8	13.3	13.1	13.2	12.0
1973	14.5	14.2	14.0	14.5	14.7
1974	14.3	14.4	14.5	14.1	14.7
1975	13.5	13.4	13.5	12.6	12.4
1976	13.9	13.9	14.6	14.0	14.5
1977	14.5	14.5	15.2	14.0	14.6
1978	15.8	15.4	15.7	15.6	15.2
1979	15.9	15.5	17.1	16.4	17.0

Source: Annual Reports to Stockholders; Moody's Investors Service, Inc.; Standard & Poor's Compustat Services, Inc. For identification of companies, see Appendix B.

## 85 Electric and Electric-Gas Utilities

Schedule 8  
Sheet 1BETA AND R<sup>2</sup> VALUES

Company	For Five-Year Periods Ending In:			
	1979		1973	
	Beta (1)	R <sup>2</sup> (2)	Beta (3)	R <sup>2</sup> (4)
Arizona Public Service Co.	0.62	27.87	0.71	16.46
Atlantic City Electric	1.06	43.32	0.26	5.89
Baltimore Gas & Electric	0.67	22.71	0.50	18.40
Boston Edison Co.	0.84	31.66	0.51	21.47
CP National Corp.	0.66	22.46	0.40	6.48
Carolina Power & Light	1.21	36.77	0.55	11.90
Central Hudson Gas & Electric	0.75	30.44	0.63	37.81
Central Illinois Light	0.76	30.85	0.39	11.48
Central Illinois Public Service	0.86	29.63	0.52	25.47
Central Maine Power Co.	0.61	25.87	0.30	9.96
Cincinnati Gas & Electric	0.65	20.15	0.58	18.81
Cleveland Electric Illumn.	0.77	30.61	0.61	31.47
Columbus & Southern Ohio	1.03	33.93	0.58	19.65
Commonwealth Edison	0.64	24.10	0.58	22.14
Community Public Service	0.66	26.39	0.69	34.33
Consolidated Edison of New York	1.16	36.47	0.45	19.02
Consumers Power Co.	1.04	28.91	0.69	29.79
Dayton Power & Light	0.82	28.61	0.38	14.82
Delmarva Power & Light	0.85	42.50	0.54	26.42
Detroit Edison Co.	0.95	23.65	0.50	28.31
Duke Power Co.	0.75	22.66	0.58	22.80
Duquesne Light Co.	0.83	35.11	0.37	18.86
Empire District Electric	0.58	25.50	0.41	22.59
Florida Power & Light	1.05	39.11	1.05	32.69
Florida Power Corp.	0.87	22.13	0.82	22.58
Gulf States Utilities Co.	0.62	24.25	0.77	16.90
Hawaiian Electric Co.	0.62	22.82	0.82	29.08
Honston Industries	0.72	16.18	0.81	25.14
Idaho Power Co.	0.45	15.31	0.43	12.13
Illinois Power Co.	0.82	28.25	0.66	22.29
Indianapolis Power & Light	1.05	29.71	0.62	21.45
Interstate Power Co.	0.53	18.45	0.40	20.44
Iowa Electric Light & Power	1.08	31.40	0.38	14.53
Iowa-Illinois Gas & Electric	1.06	30.97	0.40	18.07
Iowa Public Service Co.	0.42	16.67	0.58	31.30
Iowa Resources	0.68	33.01	0.60	32.39
Kansas City Power & Light	0.71	27.70	0.53	21.41
Kansas Gas & Electric	0.76	24.78	0.60	29.54
Kansas Power & Light	0.39	13.09	0.56	21.91
Kentucky Utilities Co.	0.69	22.57	0.57	27.63
Long Island Lighting	1.01	51.61	0.69	27.33
Louisville Gas & Electric	0.68	22.79	0.44	11.06
Minnesota Power & Light	0.55	32.72	0.61	20.81
Missouri Public Service	0.77	17.00	0.51	17.35
Montana Power Company	0.78	32.87	0.57	22.46

BETA AND R<sup>2</sup> VALUES

(continued)

Company	For Five-Year Periods Ending In:			
	1 9 7 9		1 9 7 3	
	Beta (1)	R <sup>2</sup> (2)	Beta (3)	R <sup>2</sup> (4)
Nevada Power Co.	0.97	31.77	0.89	25.74
New York State Elec. & Gas	0.79	33.70	0.45	15.72
Niagara Mohawk Power	0.62	21.40	0.42	21.92
Northern Indiana Public Service	0.91	39.14	0.59	12.13
Northern States Power	1.00	37.88	0.51	23.26
Ohio Edison Co.	0.70	22.75	0.42	13.05
Oklahoma Gas & Electric	0.85	24.91	0.73	17.30
Orange & Rockland Utilities	0.91	32.69	0.44	20.90
Pacific Gas & Electric	0.29	7.81	0.69	21.54
Pacific Power & Light	0.80	32.14	0.54	19.80
Pennsylvania Power & Light	0.56	21.92	0.46	18.92
Philadelphia Electric Co.	0.66	25.34	0.43	21.60
Portland General Electric Co.	0.78	33.66	0.45	16.77
Potomac Electric Power	0.66	21.59	0.38	10.46
Public Service Co. of Colorado	0.92	35.99	0.64	15.71
Public Service Co. of Indiana	0.76	25.88	0.56	12.20
Public Service Co. of New Hampshire	0.84	30.20	0.32	8.79
Public Service Co. of New Mexico	1.05	44.62	0.78	24.48
Public Service Electric & Gas	0.93	30.30	0.58	29.73
Puget Sound Power & Light	0.88	44.22	0.43	14.37
Rochester Gas & Electric	1.05	33.76	0.60	25.38
St. Joseph Light & Power	0.77	23.78	0.39	19.52
San Diego Gas & Electric	0.66	24.60	0.79	25.33
Savannah Electric & Power	0.56	14.13	0.57	20.28
Sierra Pacific Power Co.	0.90	42.59	0.65	20.58
South Carolina Elec. & Gas	0.90	27.87	0.90	25.91
Southern California Edison	0.56	21.65	1.00	31.77
Southern Indiana Gas & Electric	0.63	23.89	0.66	33.27
Southwestern Public Service Co.	0.59	19.64	0.72	38.30
Tampa Electric Co.	1.10	33.57	0.83	18.15
Toledo Edison Co.	0.77	24.14	0.65	21.70
Tucson Electric Power Co.	0.81	24.69	0.52	14.48
Union Electric Co.	0.57	26.11	0.37	15.16
United Illuminating Co.	0.55	21.03	0.42	17.94
Utah Power & Light	0.52	17.65	0.41	14.16
Virginia Electric & Power	0.50	26.89	0.77	22.34
Washington Water Power	0.55	26.93	0.36	17.07
Wisconsin Electric Power	0.50	18.68	0.52	22.28
Wisconsin Power & Light	0.64	27.00	0.45	16.13
Wisconsin Public Service	0.54	20.12	0.28	14.55
Average	0.77		0.57	
Median	0.76		0.56	

Source: Standard & Poor's Compustat Services, Inc.  
FA-024071

RELATIONSHIP BETWEEN BETA AND  
RATES OF RETURN ON AVERAGE COMMON STOCK  
EQUITY FOR 922 INDUSTRIAL COMPANIES

Number of Companies (1)	Range of Beta <sup>a/</sup> (2)	Rates of Return on Average Common Stock Equity			
		1978		1976-1978 Average	
		Average (3)	Median (4)	Average (5)	Median (6)
36	0.02 - 0.34	10.9%	15.1%	10.9%	14.4%
34	0.55 - 0.64	12.7	14.2	12.8	13.6
46	0.65 - 0.74	12.5	13.7	13.2	13.5
51	0.75 - 0.84	14.0	13.9	14.8	14.7
74	0.85 - 0.94	10.5	13.4	11.2	12.7
74	0.95 - 1.04	12.5	13.5	12.1	13.0
91	1.05 - 1.14	14.7	14.8	14.0	13.5
91	1.15 - 1.24	18.0	15.6	14.6	14.5
90	1.25 - 1.34	13.9	14.3	12.6	13.5
85	1.35 - 1.44	12.7	14.3	11.5	13.9
93	1.45 - 1.54	14.7	14.7	11.9	13.4
64	1.55 - 1.64	15.4	14.4	11.0	13.7
52	1.65 - 1.74	14.5	15.7	13.6	15.2
<u>41</u>	1.75 - 1.84	12.7	13.6	13.4	12.1
922					

<sup>a/</sup> Betas computed for five-year periods ending December 31, 1979.

Source: Standard & Poor's Compustat Services, Inc.

TIMES INTEREST CHARGES EARNED BEFORE INCOME TAXES  
FOR SELECTED UTILITIES

Year	Including AFUDC			Excluding AFUDC		
	Houston Lighting and Power (1)	Seven Texas Electric Utilities (2)	29 "Aa" Rated Electric and Electric-Gas Utilities (3)	Houston Lighting and Power (4)	Seven Texas Electric Utilities (5)	29 "Aa" Rated Electric and Electric-Gas Utilities (6)
1965	9.97	5.76	6.70	9.89	5.69	6.61
1966	8.35	5.58	6.65	8.20	5.33	6.54
1967	6.27	5.07	6.12	6.10	4.92	5.99
1968	5.69	5.04	5.67	5.54	4.71	5.48
1969	5.76	5.34	4.84	5.65	5.30	4.58
1970	5.19	5.18	3.98	4.97	5.06	3.71
1971	4.93	4.77	3.59	4.78	4.53	3.32
1972	4.73	4.61	3.58	4.53	4.48	3.28
1973	4.65	4.23	3.57	4.40	4.08	3.27
1974	3.53	3.44	3.14	3.36	3.41	2.86
1975	2.79	3.34	3.31	2.66	3.13	3.04
1976	4.00	3.34	3.48	3.76	3.08	3.16
1977	4.09	3.32	3.54	3.77	2.91	3.15
1978	3.62	3.13	3.46	3.29	3.01	3.05
1979	3.77			3.27		

Source: Company Annual Reports; Standard & Poor's Compustat Services, Inc. For identification of companies and method of computation, see Appendix B.

RATES OF RETURN ON AVERAGE COMMON STOCK EQUITY  
IN RELATION TO MARKET-TO-BOOK RATIOS FOR SELECTED UTILITIES

Year	Houston Industries		41 Electric Utilities		29 "Aa" Rated Electric and Electric-Gas Utilities		85 Electric and Electric-Gas Utilities		7 Texas Electric Utilities	
	Returns on Average Equity	Market-to- Book Ratios	Returns on Average Equity	Market-to- Book Ratios	Returns on Average Equity	Market-to- Book Ratios	Returns on Average Equity	Market-to- Book Ratios	Returns on Average Equity	Market-to- Book Ratios
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1969	14.5%	261%	12.6%	172%	13.4%	164%	12.6%	159%	15.1%	211%
1970	15.1	239	12.6	141	12.7	136	12.3	133	15.4	203
1971	15.5	249	12.0	133	12.2	139	11.9	135	14.4	212
1972	15.5	235	12.8	131	12.8	132	12.2	125	15.6	200
1973	13.9	178	11.7	110	12.5	112	11.5	108	15.4	172
1974	11.7	95	11.1	81	11.0	88	10.8	77	14.1	118
1975	10.9	86	12.5	82	12.5	90	11.9	82	13.7	119
1976	15.2	93	11.6	96	12.0	100	11.6	94	12.9	104
1977	15.2	110	11.7	100	12.5	108	11.5	101	13.0	104
1978	13.4	94	11.3	93	11.8	100	11.6	93	14.0	103
1979	14.3	87	11.0	83	12.4	89	11.5	84	13.2	92
1975 1Q		91		78		87		79		122
2Q		88		80		88		81		116
3Q		80		83		92		83		114
4Q		83		88		91		87		116
1976 1Q		87		93		100		93		117
2Q		83		91		97		91		97
3Q		95		95		100		95		105
4Q		106		99		108		99		102
1977 1Q		119		98		113		100		101
2Q		109		99		108		100		100
3Q		112		101		110		103		108
4Q		102		97		105		98		105
1978 1Q		95		95		103		95		104
2Q		93		93		99		93		103
3Q		100		93		101		94		107
4Q		88		88		93		88		96
1979 1Q		87		89		94		88		96
2Q		88		83		89		84		93
3Q		89		84		92		86		93
4Q		83		77		83		77		83
1980 1Q		81		70		75		71		76

a/ Houston Lighting & Power prior to 1976. Returns on average common equity for Houston Lighting & Power were 14.7%, 14.4%, 12.7% and 13.2% for 1976-79 respectively.

Source: Annual Reports to Stockholders; Moody's Investors Service, Inc.; Standard & Poor's Compustat Services, Inc. For identification of companies, see Appendix B.

Houston Industries<sup>a/</sup>  
 INVESTORS' EXPERIENCE  
 (Compound Rates of Growth or Decline)

Date Sold	Date Purchased																			
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	
1961	16.58*																			
1962	15.93	(1.61)*																		
1963	19.41	11.55	26.77*																	
1964	18.58	13.12	21.30	16.13*																
1965	17.05	12.62	17.81	13.60	11.12*															
1966	12.29	7.98	10.52	5.60	0.70	(8.75)*														
1967	9.77	5.85	7.40	3.06	(0.96)	16.50	(4.20)*													
1968	8.54	5.03	6.18	2.49	(0.59)	(4.30)	(2.00)	0.27*												
1969	6.96	3.74	4.53	1.23	(1.46)	(4.44)	(2.96)	(2.34)	(4.86)*											
1970	6.46	3.55	4.21	1.35	(0.89)	(3.18)	(1.73)	(0.90)	(1.48)	2.03*										
1971	7.29	4.72	5.45	3.05	1.36	(0.23)	1.57	1.07	4.02	8.76	15.93*									
1972	7.18	4.84	5.52	3.39	1.93	0.65	2.31	3.66	4.53	7.86	19.90	6.08*								
1973	5.60	3.35	3.83	1.78	0.33	(0.98)	0.19	0.93	1.07	2.61	2.80	(3.20)	(11.66)*							
1974	1.74	(0.54)	(0.45)	(2.60)	(4.28)	(5.80)	(5.51)	(5.70)	(6.66)	(7.01)	(9.15)	(16.24)	(25.56)	(37.28)*						
1975	1.68	(0.45)	(0.35)	(2.33)	(3.83)	(5.23)	(4.84)	(4.92)	(5.53)	(5.76)	(7.25)	(12.28)	(17.66)	(20.51)	0.76*					
1976	2.81	0.87	1.06	(0.68)	(1.95)	(3.08)	(2.50)	(2.30)	(2.62)	(2.30)	(3.00)	(6.78)	(9.29)	(8.47)	10.56	21.33*				
1977	4.52	2.79	3.09	1.58	0.56	(0.29)	0.52	1.00	1.08	1.85	1.82	(0.35)	(1.60)	1.19	18.54	28.58	36.25*			
1978	4.19	2.54	2.81	1.40	0.43	(0.37)	0.36	0.79	0.84	1.49	1.43	(0.49)	(1.55)	0.61	13.73	17.72	15.96	(1.31)*		
1979	4.24	2.68	2.94	1.61	0.71	0.01	0.72	1.14	1.22	1.85	1.83	0.19	(0.61)	1.35	11.56	14.43	(2.22)	1.85	5.13*	

a/ Houston Lighting & Power prior to 1976.

Source: Standard & Poor's Compustat Services, Inc., Stock Guide; Moody's Dividend Record.

RATES OF RETURN ON AVERAGE COMMON STOCK EQUITY  
IN RELATION TO  
MARKET-TO-BOOK RATIOS FOR SELECTED UTILITIES AND INDUSTRIALS

Year	Ten Stable Industries 44 Industrials		All Manufacturing Industries 58 Industrials		29 "Aa" Rated Electric and Electric-Gas Utilities	
	Returns on Average Equity	Market-to- Book Ratios	Returns on Average Equity	Market-to- Book Ratios	Returns on Average Equity	Market-to- Book Ratios
	(1)	(2)	(3)	(4)	(5)	(6)
1969	13.8%	222%	13.6%	222%	13.4%	164%
1970	13.3	179	13.0	177	12.7	136
1971	13.3	210	12.9	202	12.2	139
1972	13.8	211	13.3	207	12.8	132
1973	14.5	188	14.2	185	12.5	112
1974	14.3	131	14.4	129	11.0	88
1975	13.5	125	13.4	122	12.5	90
1976	13.9	126	13.9	126	12.0	100
1977	14.5	135	14.5	127	12.5	108
1978	15.8	118	15.4	114	11.8	100
1979	15.9	105	15.5	103	12.4	89
1975 1Q		122		116		87
2Q		138		136		88
3Q		127		127		92
4Q		131		134		91
1976 1Q		141		141		100
2Q		132		136		97
3Q		137		137		100
4Q		128		128		108
1977 1Q		138		138		113
2Q		134		126		108
3Q		133		131		110
4Q		124		123		105
1978 1Q		117		117		103
2Q		123		121		99
3Q		129		131		101
4Q		111		111		93
1979 1Q		113		113		94
2Q		112		111		89
3Q		116		116		92
4Q		107		106		83
1980 1Q		106		101		75

Source: Annual Reports to Stockholders; Moody's Investors Service, Inc.; Standard & Poor's Compustat Services, Inc. For identification of companies and method of computation, see Appendix B.

RATES OF RETURN ON AVERAGE COMMON STOCK EQUITY IN  
RELATION TO MARKET-TO-BOOK RATIOS FOR SELECTED INDUSTRIALS

Year	All Manufacturing Industries				S&P 400 Industrials	
	46 "A" Ranked Industrials		58 "A-" Ranked Industrials		Returns on	Market-to-
	Returns on Average Equity (1)	Market-to- Book Ratios (2)	Returns on Average Equity (3)	Market-to- Book Ratios (4)	Average Equity (5)	Book Ratios (6)
1969	13.1%	207%	13.8%	225%	12.0%	210%
1970	12.8	164	12.9	175	10.4	175
1971	11.9	185	12.3	192	11.1	201
1972	13.1	195	13.2	212	12.0	214
1973	14.0	162	14.5	156	14.7	199
1974	14.5	125	14.1	104	14.7	142
1975	13.5	126	12.6	90	12.4	139
1976	14.6	133	14.0	106	14.5	155
1977	15.2	129	14.0	109	14.6	137
1978	15.7	115	15.6	109	15.2	123
1979	17.1	116	16.4	111	17.0	121
1975 1Q		119		85		130
2Q		143		98		144
3Q		143		97		142
4Q		136		94		141
1976 1Q		148		111		158
2Q		143		110		155
3Q		155		111		159
4Q		144		108		150
1977 1Q		145		113		148
2Q		135		110		138
3Q		132		109		136
4Q		123		107		126
1978 1Q		116		107		120
2Q		120		116		123
3Q		127		125		131
4Q		113		107		120
1979 1Q		116		110		123
2Q		112		112		119
3Q		124		113		124
4Q		115		105		118
1980 1Q		119		107		125

Source: Standard & Poor's Compustat Services, Inc., Analysts Handbook; Moody's Investors Service, Inc. For identification of companies and method of computation, see Appendix B.

## EARNINGS-PRICE RATIOS FOR SELECTED UTILITIES AND INDUSTRIALS

Year	Houston	41	29 "Aa" Rated	7 Texas	Ten Stable	All
	Industries	Electric	Electric &	Electric	Industries	Manufacturing
	(1)	Utilities	Electric-Gas	Utilities	44	58
	(1)	(2)	Utilities	(4)	Industrials	Industrials
			(3)		(5)	(6)
1970	6.3%	8.9%	9.1%	8.0%	7.0%	7.0%
1971	6.2	8.4	8.7	7.7	6.1	6.1
1972	6.6	9.7	9.7	8.0	6.0	6.0
1973	7.6	10.1	10.4	9.0	7.4	7.4
1974	12.3	13.4	12.6	12.5	10.0	10.0
1975	13.1	14.4	13.5	12.8	10.6	10.6
1976	15.8	12.1	12.3	11.9	10.8	10.7
1977	13.5	11.3	11.4	12.5	11.3	11.2
1978	13.9	12.2	13.0	13.3	12.3	12.1
1979	16.5	13.1	13.8	14.0	14.5	14.1
1975 1Q	12.3	14.6	13.5	13.2	10.6	10.6
2Q	11.4	13.8	13.0	13.2	9.4	9.4
3Q	12.1	13.4	13.1	12.4	9.7	10.0
4Q	13.3	13.7	12.8	11.7	9.8	10.1
1976 1Q	13.7	13.0	12.2	11.4	9.4	9.4
2Q	15.1	12.8	12.3	12.1	10.6	10.5
3Q	15.1	11.7	11.0	12.0	9.8	9.8
4Q	13.4	11.4	11.0	11.4	10.8	10.8
1977 1Q	12.1	11.5	11.6	11.4	10.5	10.5
2Q	13.0	11.4	11.6	12.2	10.8	10.8
3Q	12.7	11.5	11.3	12.3	10.7	10.7
4Q	13.9	11.4	11.6	12.4	11.4	11.4
1978 1Q	14.7	11.8	12.1	12.6	12.6	12.0
2Q	14.3	12.2	12.2	12.7	11.7	11.6
3Q	13.4	12.2	12.2	13.0	11.5	11.4
4Q	14.5	12.7	13.4	14.0	13.0	12.5
1979 1Q	15.4	13.2	13.6	13.2	13.7	13.2
2Q	15.5	13.4	14.1	12.7	13.6	13.2
3Q	16.2	12.9	14.1	13.1	13.9	13.6
4Q	16.9	14.3	14.7	15.2	14.9	14.5
1980 1Q	17.2	15.3	15.9	16.4	15.4	14.5

a/ Houston Lighting & Power prior to 1976.

Source: Annual Reports to Stockholders; Moody's Investors Service, Inc.; Standard & Poor's Compustat Services, Inc. For identification of companies, see Appendix B.

## DIVIDEND PAYOUT RATIOS FOR SELECTED UTILITIES AND INDUSTRIALS

Year	Houston Industries <sup>a/</sup> (1)	41 Electric Utilities (2)	29 "Aa" Rated Electric & Electric-Gas Utilities (3)	7 Texas Electric Utilities (4)	Ten Stable Industries 74 Industrials (5)	All Manufacturing Industries 58 Industrials (6)
1970	46.9 <del>8</del>	66.5 <del>8</del>	67.4 <del>8</del>	66.7 <del>8</del>	47.2 <del>8</del>	46.4 <del>8</del>
1971	45.4	70.5	67.2	66.9	46.6	44.8
1972	43.9	65.4	66.1	64.0	43.9	43.0
1973	45.9	65.4	65.4	62.8	39.5	36.5
1974	51.4	70.1	70.8	66.3	39.9	36.7
1975	53.4	62.7	68.1	69.1	41.4	38.6
1976	40.1	67.0	65.8	63.6	38.4	37.0
1977	42.2	70.5	67.1	59.1	37.9	37.3
1978	50.4	72.9	70.5	59.6	37.8	36.8
1979	48.8	78.3	70.0	73.8	37.2	35.4

a/ Houston Lighting & Power prior to 1976.

Source: Annual Reports to Stockholders; Moody's Investors Service, Inc.; Standard & Poor's Compustat Services, Inc. For identification of companies, see Appendix B.

## DIVIDEND YIELDS FOR SELECTED UTILITIES AND INDUSTRIALS

Year	Houston	41	29 "Aa" Rated	7 Texas	Ten Stable	All
	Industries	Electric	Electric &	Electric	Industries	Manufacturing
	(1)	Utilities	Electric-Gas	Utilities	44	Industries
		(2)	Utilities	(4)	Industries	58
			(3)		(5)	Industrials
						(6)
1970	3.0%	6.4%	6.2%	6.0%	3.2%	3.2%
1971	2.8	6.0	6.0	5.4	2.7	2.7
1972	2.9	6.3	6.5	5.8	2.4	2.5
1973	3.5	7.0	7.0	6.2	2.7	3.0
1974	6.3	9.4	9.2	8.4	3.9	3.7
1975	7.0	9.4	9.0	9.0	4.2	4.1
1976	6.3	8.3	8.3	8.3	3.7	3.5
1977	5.7	8.1	7.9	7.9	4.1	4.1
1978	7.0	9.0	8.8	8.5	5.0	4.7
1979	8.0	10.1	10.0	9.5	5.5	5.4
1975 1Q	6.7	9.8	9.5	8.8	4.6	4.4
2Q	6.8	9.5	9.4	8.9	4.1	3.9
3Q	7.5	9.4	9.1	8.7	4.0	3.9
4Q	7.1	9.0	8.9	8.8	3.7	3.6
1976 1Q	6.8	8.5	8.5	8.1	3.4	3.3
2Q	6.8	8.6	8.6	8.6	3.5	3.3
3Q	6.0	8.2	8.2	8.2	3.6	3.5
4Q	5.9	8.2	7.8	7.9	3.8	3.7
1977 1Q	5.2	8.0	7.9	7.9	3.9	3.9
2Q	5.4	8.2	7.9	7.9	4.0	4.0
3Q	5.9	8.0	7.6	8.2	4.2	4.1
4Q	6.2	8.3	8.0	8.3	4.5	4.4
1978 1Q	7.2	8.7	8.5	8.5	4.9	4.8
2Q	7.0	9.0	8.7	8.7	4.8	4.7
3Q	6.6	9.0	8.5	8.9	4.8	4.6
4Q	7.3	9.6	9.2	9.1	5.4	5.2
1979 1Q	8.2	9.6	9.4	9.4	5.4	5.3
2Q	7.9	10.1	9.8	9.4	5.6	5.6
3Q	7.8	9.8	9.7	9.4	5.5	5.4
4Q	8.2	11.3	10.8	10.3	5.8	5.7
1980 1Q	9.5	12.4	12.1	12.1	5.8	5.5

a/ Houston Lighting & Power prior to 1976.

Source: Annual Reports to Stockholders; Moody's Investors Service, Inc.; Standard & Poor's Compustat Services, Inc. For identification of companies, see Appendix B.

Houston Industries <sup>a/</sup>

## ANNUAL GROWTH RATES

Year	Earnings Per Share		Dividends Per Share		Book Value Per Share		Retention Ratio Per Share <sup>b/</sup>	Return on Average Equity	Growth in Retained Earnings Per Share <sup>c/</sup>
	Value (1)	Annual Growth (2)	Value (3)	Annual Growth (4)	Value (5)	Annual Growth (6)			
1963	\$1.54	--	\$0.69	--	\$10.10	--	--	--	--
1964	1.70	10.39%	0.78	13.04%	11.02	9.11%	54.1%	16.1%	8.71%
1965	1.99	17.06	0.92	17.95	12.09	9.71	53.8	17.2	9.25
1966	2.01	1.00	1.00	8.70	13.10	8.35	50.2	16.0	8.03
1967	2.00	(0.50)	1.00	-0-	14.10	7.63	50.0	14.7	7.35
1968	2.06	3.00	1.09	9.00	15.06	6.81	47.1	14.1	6.64
1969	2.27	10.19	1.12	2.75	16.21	7.64	50.7	14.5	7.35
1970	2.56	12.78	1.20	7.14	17.57	8.39	53.1	15.1	8.02
1971	2.84	10.94	1.29	7.50	19.11	8.76	54.6	15.5	8.46
1972	3.10	9.15	1.36	5.43	20.84	9.05	56.1	15.5	8.70
1973	3.05	(1.61)	1.40	2.94	24.19	16.07	54.1	13.9	7.52
1974	2.92	(4.26)	1.50	7.14	25.61	5.87	48.6	11.7	5.69
1975	2.92	-0-	1.56	4.00	26.42	3.16	46.6	10.9	5.08
1976	4.01	37.33	1.61	3.21	28.27	7.00	59.9	15.2	9.10
1977	4.41	9.98	1.86	15.53	31.14	10.15	57.8	15.2	8.79
1978	4.21	(4.54)	2.12	13.98	33.03	6.07	49.6	13.4	6.65
1979	4.84	14.96	2.36	11.32	34.61	4.78	51.2	17.3	7.33
Averages:									
1975-1979		11.55%		9.61%		6.23%			7.39%
1970-1979		8.47		7.82		7.93			7.53

<sup>a/</sup> Houston Lighting and Power prior to 1976.

<sup>b/</sup> Retention ratio per share (1 - [dividends per share ÷ earnings per share]).

<sup>c/</sup> Annual growth rates in retained earnings for HL&P were 8.70%, 8.08%, 5.84% and 7.15% for 1976-1979 respectively.

Source: Annual Reports to Stockholders.

Houston Industries <sup>a/</sup>RATES OF GROWTH IN PER SHARE  
EARNINGS, DIVIDENDS, AND AVERAGE BOOK VALUE

(Least Squares Technique)

	<u>Earnings</u> <u>Per Share</u> (1)	<u>Dividends</u> <u>Per Share</u> (2)	<u>Average</u> <u>Book Value</u> <u>Per Share</u> (3)
For Five-Year Periods <u>Ending In:</u>			
1976	4.4%	4.6%	8.6%
1977	7.7	6.0	7.7
1978	9.5	8.2	6.9
1979	11.2	10.0	6.6
For Seven-Year Periods <u>Ending In:</u>			
1976	5.8%	5.3%	8.8%
1977	6.5	5.7	8.5
1978	6.6	6.8	8.1
1979	7.8	8.2	7.4
For Ten-Year Periods <u>Ending In:</u>			
1976	6.4%	5.3%	8.5%
1977	7.3	5.8	8.5
1978	7.1	6.3	8.4
1979	7.1	7.1	8.2

<sup>a/</sup> Houston Lighting and Power prior to 1976.

Source: Annual Reports to Stockholders; Standard &amp; Poor's Compustat Services, Inc.

GROWTH RATES FOR INDUSTRIALS IN PER SHARE  
EARNINGS, DIVIDENDS, AND AVERAGE BOOK VALUE

(Least Squares Technique)

Year	Earnings Per Share		Dividends Per Share		Average Book Value Per Share	
	Ten Stable Industries 44 Industrials (1)	All Manufacturing Industries 58 Industrials (2)	Ten Stable Industries 44 Industrials (3)	All Manufacturing Industries 58 Industrials (4)	Ten Stable Industries 44 Industrials (5)	All Manufacturing Industries 58 Industrials (6)

For Five-Year Periods  
Ending In:

1975	10.6%	11.0%	5.4%	5.5%	8.1%	8.3%
1976	9.8	10.7	6.5	6.9	8.8	9.0
1977	10.0	10.2	7.8	7.9	9.0	9.1
1978	11.6	10.6	9.2	9.5	8.9	9.5
1979	12.3	13.0	11.0	11.5	9.4	9.5

For Seven-Year Periods  
Ending In:

1975	9.3%	9.6%	5.2%	5.3%	7.7%	7.9%
1976	9.9	10.2	6.4	6.4	8.3	8.3
1977	10.4	11.1	7.1	6.6	8.7	8.7
1978	11.0	11.0	8.1	8.1	9.1	9.1
1979	11.9	12.0	9.5	9.5	9.3	9.5

For Ten-Year Periods  
Ending In:

1975	7.6%	7.7%	5.3%	5.8%	8.1%	8.3%
1976	8.0	8.8	5.7	5.7	8.3	8.5
1977	9.0	9.8	6.0	6.0	8.0	8.6
1978	10.2	10.3	6.1	6.8	8.3	8.6
1979	11.0	11.0	7.6	7.8	8.7	8.7

Source: Standard & Poor's Compustat Services, Inc.; Moody's Investors Service, Inc. For identification of companies, see Appendix B.

GROWTH RATES FOR UTILITIES IN PER SHARE  
EARNINGS, DIVIDENDS, AND AVERAGE BOOK VALUE

(Least Squares Technique)

	Earnings Per Share		Dividends Per Share		Average Book Value Per Share	
	29 "Aa" Rated Electric and Electric-Gas Utilities (1)	7 Texas Electric Utilities (2)	29 "Aa" Rated Electric and Electric-Gas Utilities (3)	7 Texas Electric Utilities (4)	29 "Aa" Rated Electric and Electric-Gas Utilities (5)	7 Texas Electric Utilities (6)
For Five-Year Periods						
Ending In: _____						
1975	2.3%	4.0%	2.5%	4.4%	4.1%	5.9%
1976	2.3	2.8	2.6	4.0	3.6	5.6
1977	2.6	3.1	3.0	3.8	3.5	6.0
1978	3.7	5.1	3.6	3.8	3.1	6.2
1979	5.8	4.9	4.8	4.0	2.7	5.4
For Seven-Year Periods						
Ending In: _____						
1975	2.9%	5.7%	3.2%	4.5%	4.8%	6.5%
1976	2.6	4.1	2.8	4.2	4.2	5.8
1977	3.2	4.1	3.3	4.0	3.8	5.9
1978	2.9	4.8	3.3	4.1	3.6	6.1
1979	3.3	4.4	3.8	4.0	3.3	6.2
For Ten-Year Periods						
Ending In: _____						
1975	3.7%	5.8%	4.4%	4.7%	4.9%	5.7%
1976	3.3	6.0	3.8	4.5	4.6	5.6
1977	3.4	5.6	3.3	4.5	4.5	5.6
1978	3.0	5.4	3.4	4.4	4.3	5.8
1979	3.0	5.2	3.6	4.4	3.9	6.0

Source: Annual Reports to Stockholders; Moody's Investors Service, Inc.; Standard & Poor's Compustat Services, Inc. For identification of companies, see Appendix B.

## SELECTION OF SAMPLES OF INDUSTRIAL COMPANIES

I. Selection of Industrial Groups From Stable Industries

## a. Identification of Stable Industries

The sample selection process began with an identification of stable industries among the 30 manufacturing industries identified in the Federal Trade Commission's Quarterly Report of Manufacturing Corporations prior to 1974, (excluding "miscellaneous" manufacturers (SIC Code 39)).<sup>1/</sup> A list of the 30 major and sub-industries appears on Schedule A-1.

Using Standard & Poor's Compustat data base -- primary, supplementary, and tertiary files -- weighted average rates of return on average common equity were computed for each industry (based on SIC codes) in each of the years 1964-1978. The average return of these industries over the period was 12.31 percent, with a standard deviation of 2.71. Six industries whose average earnings were either above 15.02 percent or below 9.60 percent -- i.e., not within one standard deviation of the average -- were eliminated from consideration.

The next criterion for selection focused on stability of earnings over time for the remaining 24 industries, with the measure of stability made by reference to the standard deviation from each industry's average earnings over the 15-year period 1964-1978. Since the focus here is on relative stability, it is appropriate to express the standard deviation as a percent of each industry's average earnings, called the coefficient of variation.

<sup>1/</sup> Reliance on the 1974 publication was viewed as preferable to the use of the present classification because an industry reclassification undertaken in 1974, reduced the number of industries from 30 to 21, excluding "miscellaneous".

## RATES OF RETURN ON AVERAGE COMMON STOCK EQUITY

## FTC Manufacturing Industries

Standard Industrial Classification (1)	Industry (2)	Average Return 1964-1978 (3)	Standard Deviation (4)	Coefficient of Variation (5)
20	Food and Kindred Products <sup>a/</sup>	13.88%	1.14%	8.23%
202	Dairy Products	12.29	1.32	10.74
205	Bakery Products	11.10	6.54	58.97
2082-85	Alcoholic Beverages	10.87	0.96	8.79
21	Tobacco Manufacturers	14.36	1.15	7.99
22	Textile Mill Products	9.51	2.11	22.15
23	Apparel and Other Finished Products	12.69	2.80	22.04
24	Lumber and Wood Products, excluding Furniture	12.80	3.31	25.85
25	Furniture and Fixtures	7.45	1.15	15.50
26	Paper and Allied Products	11.02	2.99	27.14
27	Printing and Publishing	14.65	2.38	16.22
28	Chemicals and Allied Products <sup>b/</sup>	14.28	1.89	13.20
28.	Basic Chemicals	14.14	3.58	25.35
283	Drugs	20.44	1.08	5.27
29	Petroleum Related Products <sup>c/</sup>	9.08	2.84	31.28
291	Petroleum Refining	12.57	2.34	18.62
30	Rubber and Misc. Plastics Products	9.81	1.87	19.11
31	Leather and Leather Products	13.16	2.10	15.94
32	Stone, Clay and Glass Products	10.77	1.85	17.19
33	Primary Metal Industries <sup>d/</sup>	11.49	4.49	39.08
331	Primary Iron and Steel	7.32	3.32	41.86
333	Primary Nonferrous Metals	9.67	3.09	31.99
34	Other Fabricated Metal Products	12.66	1.87	14.80
35	Other Machinery <sup>e/</sup>	14.87	1.55	10.41
354	Metalworking Machinery and Equipment	9.91	4.64	46.84
36	Electrical Machinery, Equipment and Supplies	13.92	1.88	13.50
37	Transportation Equipment <sup>f/</sup>	10.67	2.22	20.76
371	Motor Vehicles and Equipment	14.05	4.37	31.13
372	Aircraft and Parts	12.07	5.08	42.12
38	Instruments and Related Products	17.09	2.27	13.29
	Mean	12.31%		
	Standard Deviation	2.71		
	Mean $\pm$ Standard Deviation	9.60-15.02		

<sup>a/</sup> Excludes dairy products, bakery products, and alcoholic beverages.

<sup>b/</sup> Excludes basic chemicals, and drugs.

<sup>c/</sup> Excludes petroleum refining.

<sup>d/</sup> Excludes primary iron and steel, and primary nonferrous metals.

<sup>e/</sup> Excludes metalworking machinery and equipment.

<sup>f/</sup> Excludes motor vehicles and equipment, and aircraft and parts.

Source: Standard & Poor's Compustat Services, Inc.

These coefficients of variation were then arrayed. The ten industries with the lowest coefficients of variation -- i.e., the lower 40 percent of the 24 remaining industries -- were selected as "stable" industries. The ten industries are:

	<u>Coefficient of Variation</u>
1. Tobacco Manufacturers	7.99%
2. Food and Kindred Products (excluding dairy products, bakery products, and alcoholic beverages)	8.23
3. Alcoholic Beverages	8.79
4. Other Machinery (excluding metal-working machinery and equipment)	10.41
5. Dairy Products	10.74
6. Chemicals and Allied Products (excluding basic chemicals and drugs)	13.20
7. Electrical Machinery, Equipment, and Supplies	13.50
8. Other Fabricated Metal Products	14.80
9. Leather and Leather Products	15.94
0. Printing and Publishing	16.22

It should be noted that six of these ten industries are engaged in essentially the consumer-oriented line of business, whose demand characteristics bear a resemblance to utility services. It is also of interest to note that while the above selection of industries was based on earnings over a 15-year period, reliance on ten-year data (1969-1978) would have produced eight of the above-listed industries. The ten-year average earnings of the two industries which would have been excluded, "Tobacco Manufacturers" and "Other Machinery", did not fall within one standard deviation of the mean of the ten-year average earnings of the 30 industries.

#### b. Selection of Companies Based on Stability and Size

The second stage of the selection process focused on the companies within these ten industry groups. As of September 1979, there were 673 companies in the ten industries on the Compustat files. An initial

screening eliminated companies that: (1) had negative equity in any year 1969-1978; (2) had a ten-year (1969-1978) average return on common equity greater than 40 percent or less than -20 percent; (3) did not have data available for at least the past ten years. These three criteria reduced the number of companies to 569.

Since investors give some weight to size of operations, a size criterion was introduced which eliminated all companies with 1978 net sales (1977 if 1978 net sales were not available) of less than \$500 million. The companies remaining numbered 182. The average return in the ten-year period ending 1978 (1977 if the 1978 return was not available) was 13.77 percent, with a standard deviation of 4.4%

Following the same procedure as in the identification of stable industries, companies whose average return on common equity exceeded or fell short of the average by more than one standard deviation, i.e., returns above 18.19 percent or below 9.35 percent, were eliminated. This step reduced the number of companies to 133.

The next criterion for selection focused on stability of earnings over the last ten years. The measure of stability used was again the coefficient of variation. The 133 companies were arrayed by coefficients of variation, and companies were selected by starting with the lowest coefficient and adding companies until the average coefficient of variation for the group was 11.8 percent -- equal to that of the group of 29 "Aa" rated electric and electric-gas utilities. This process resulted in a sample of 44 companies. (For a listing of companies, see Appendix B.)

## II. Selection of Industrial Groups From All Manufacturing Industries

### a. Selection of Companies Based on Stability and Size

The selection process of the groups of companies from all manufacturing industries was similar to the above described process. The universe for this selection was all companies falling within the manufacturing classifications, i.e., SIC codes 2000-3999. As of September 1979, there were 1,281 such companies on the Compustat files. The initial screening (described in Appendix A pages 2 and 3) and the elimination of companies whose net sales were less than \$500 million in 1978 (1977 if 1978 net sales were not available) reduced the group to 371 companies. Their average return for the ten-year period ending 1978 (1977 if the 1978 return was not available) was 12.66 percent, with a standard deviation of 4.62.

Again, companies whose average return on equity fell outside one standard deviation of the average -- above 17.48 percent or below 8.04 percent -- were eliminated. This step reduced the number of companies to 272. These companies were then arrayed by coefficients of variation, and companies were selected by starting with the lowest coefficient and adding companies until the average coefficient of variation for the group was 11.8 percent -- equal to that of the group of 29 "Aa" rated electric and electric-gas utilities. This process resulted in a sample of 58 companies. (For a listing of companies, see Appendix B.)

### b. Selection of Companies Based on Stability and Common Stock Rankings

In the selection of the additional samples from all manufacturing industries, companies were chosen based on stability of returns and Standard & Poor's common stock rankings, regardless of the level of revenues. The initial screening (described in Appendix A pages 2-3) reduced the group to 1,079 companies. Their average return for the ten-year period ending 1978 (1977 if the 1978 return was not available) was 10.90 percent, with a standard deviation of 6.58.

Again, companies whose average return on equity fell outside one standard deviation of the average -- above 17.48 percent or below 4.32 percent -- were eliminated. This step reduced the number of companies to 815. These companies were then arrayed by coefficients of variation based on the ten-year average returns on common equity. The "A" and "A-" ranked companies were chosen from the lower 40 percent (815 x 40% = 326 companies) of the array based on Standard & Poor's common stock rankings as of June 1978 and June 1979. The resulting samples were 46 "A" ranked and 58 "A-" ranked companies. (For a listing of companies, see Appendix B.)

### III. Tests for Bias of Selection Process

In the sample selection process described above, a judgmental choice was made insofar as certain samples were limited to only those companies whose 1978 net sales were in excess of \$500 million. In order to ascertain the impact -- on the end result -- of this judgmental choice, the results of the selection process were tested by (1) lowering the revenue criterion from \$500 million to \$250 million; and (2) dropping the revenue criterion altogether. In each test the companies were arrayed by coefficient of variation in descending order, and the return was computed for the number of companies at the lower end of each array required to yield the same average coefficient of variation (11.8) as that of the group of 29 "Aa" rated electric and electric-gas utilities. The results of these tests are summarized below:

All Manufacturing Industries		
Sales Over \$500 MM <u>(a)</u>	Sales Over \$250 MM <u>(b)</u>	All Com- panies <u>(c)</u>

1. Total number of companies whose earnings are within one standard deviation of the average	272	378	815
2. Number of companies at lower end of array with average coefficient of variation of 11.8	58	69	93
3. Average return (1974-78) of companies on Line 2	14.33%	14.36%	14.32%

## DESCRIPTION OF REFERENCE GROUPS

General

The data for the various reference groups are derived directly from published figures.

The various ratios -- such as earnings on book equity, dividend yield, etc. -- were computed separately for each company. The data for the different groups reflect medians or simple arithmetic averages, which give equal weight to each company's experience so as to avoid the effect of variation due to size. Consolidated financial statements were used where applicable.

When a company's fiscal year ended between January 1 and May 31, the data were considered as for the prior calendar year; when a company's fiscal year ended between June 1 and December 31, the data were considered as for the current calendar year.

Utility Reference GroupsTwenty-nine "Aa" Rated Electric and Electric-Gas Utilities

This reference group includes all electric and electric-gas operating companies (excluding Houston Industries) with revenues over \$50 million in 1978, whose common stocks were listed on the New York Stock Exchange, and whose bonds carry a "Aa" rating by Moody's (December 1979):

Atlantic City Electric  
Baltimore Gas & Electric  
Central Illinois Public Service  
Cincinnati Gas & Electric  
Cleveland Electric Illuminating

Illinois Power Company  
Indianapolis Power & Light  
Iowa-Illinois Gas & Electric  
Iowa Public Service Company  
Iowa Resources Inc.

Kansas City Power & Light  
Kansas Power & Light  
Kentucky Utilities Company  
Northern Indiana Public Service  
Northern States Power

Oklahoma Gas & Electric  
Pacific Gas & Electric  
Pennsylvania Power & Light  
Public Service Co. of Colorado  
Public Service Co. of Indiana

Public Service Co. of New Mex.  
Public Service Co. Elec. & Gas  
Southern California Edison Co.  
Southern Indiana Gas & Electric  
Southwestern Public Service Co.

Tampa Electric Company  
Wisconsin Electric Power  
Wisconsin Power & Light  
Wisconsin Public Service

#### Forty-one Electric Utilities

This reference group is comprised of those companies included in the group of 85 electric and electric-gas utilities whose electric revenues constituted at least 90 percent of total revenues in 1978, excluding Houston Industries. These companies are identified by an asterisk on Appendix B page 3.

#### Eighty-five U. S. Electric Utilities

This reference group includes all electric or electric-gas operating companies with revenues over \$50 million in 1978 whose common stocks were listed on the New York Stock Exchange:

- Arizona Public Service
- \* Atlantic City Electric
- Baltimore Gas & Electric
- \* Boston Edison
- \* Carolina Power & Light
- Central Hudson Gas & Electric
- Central Illinois Light
- Central Illinois Public Service
- \* Central Maine Power
- Cincinnati Gas & Electric
- \* Cleveland Electric Illuminating
- \* Columbus & Southern Ohio Electric
- \* Commonwealth Edison
- \* Community Public Service
- Consolidated Edison
- Consumers Power
- CP National Corporation
- Dayton Power & Light
- Delmarva Power & Light
- \* Detroit Edison
- \* Duke Power
- \* Duquesne Light
- \* Empire District Electric
- \* Florida Power
- \* Florida Power & Light
- \* Gulf States Utilities
- \* Hawaiian Electric
- Houston Industries
- \* Idaho Power
- Illinois Power
- \* Indianapolis Power & Light
- Interstate Power
- Iowa Electric Light & Power
- Iowa-Illinois Gas & Electric
- Iowa Public Service
- Iowa Resources
- \* Kansas City Power & Light
- \* Kansas Gas & Electric
- Kansas Power & Light
- \* Kentucky Utilities
- Long Island Lighting
- Louisville Gas & Electric
- \* Minnesota Power & Light
- Missouri Public Service
- Montana Power
- \* Nevada Power
- New York State Electric & Gas
- Niagara Mohawk
- Northern Indiana Public Service
- Northern States Power
- \* Ohio Edison
- \* Oklahoma Gas & Electric
- Orange & Rockland Utilities
- Pacific Gas and Electric
- Pacific Power & Light
- \* Pennsylvania Power & Light
- Philadelphia Electric
- \* Portland General Electric
- \* Potomac Electric Power
- Public Service of Colorado
- \* Public Service of Indiana
- \* Public Service of New Hamp.
- \* Public Service of New Mex.
- Public Service Electric & Gas
- \* Puget Sound Power & Light
- Rochester Gas & Electric
- St. Joseph Light & Power
- San Diego Gas & Electric
- \* Savannah Electric
- Sierra Pacific Power
- South Carolina Electric & Gas
- \* Southern California Edison
- Southern Indiana Gas & Elec.
- \* Southwestern Public Service
- \* Tampa Electric
- \* Toledo Edison
- Tucson Electric Power
- \* Union Electric
- \* United Illuminating
- \* Utah Power and Light
- \* Virginia Electric & Power
- Washington Water Power
- Wisconsin Electric Power
- Wisconsin Power & Light
- Wisconsin Public Service

\* Included in group of 41 electric utilities.

Seven Texas Electric Utilities

This reference group includes those investor-owned electric utilities in Texas which are not subsidiaries of holding companies:

Central & Southwest Corp.  
Community Public Service  
El Paso Electric Company  
Gulf States Utilities Co.  
Southwestern Electric Service  
Southwestern Public Service Company  
Texas Utilities Company

Industrial Reference Groups

Industrial group selected from ten stable industries

Forty-four Industrials

This reference group is comprised of the following companies which meet the criteria described in Appendix A:

American Brands Inc.	Crown Cork & Seal Co. Inc.
American Cyanamid Company	Donnelley (R. R.) & Sons Co.
Beatrice Foods Company	Eagle-Picher Industries
Black & Decker Manufacturing Co.	Ethyl Corporation
Borden Inc.	General Electric Company
Brown Group Inc.	General Foods Corp.
Burroughs Corp.	General Mills Inc.
CPC International Inc.	Greyhound Corp.
Campbell Soup Company	Heinz (H. J.) Co.
Carnation Company	Hobart Corporation
Clark Equipment Company	Ingersoll-Rand Company
Colgate-Palmolive Company	Interco Inc.
Combustion Engineering Inc.	Knight-Ridder Newspapers Inc.
Consolidated Foods Corp.	Kraft Inc.
Continental Group	Norton Simon Inc.

Parker-Hannifin Corp.  
Peabody International Corp.  
Procter & Gamble Company  
Purex Industries Inc.  
Quaker Oats Company  
  
Ralston Purina Company  
Revlon Inc.  
Reynolds (R. J.) Industries  
Signode Corporation

Sperry Corporation  
Standard Brands Inc.  
Tecumseh Products Company  
Timken Company  
Westinghouse Electric Corp.

Industrial groups selected from all manufacturing industries

Fifty-eight Industrials

ACF Industries  
American Brands Inc.  
American Cyanamid Company  
American Hospital Supply  
Baxter Travenol Laboratories  
  
Beatrice Foods Company  
Becton, Dickinson & Company  
Black & Decker Manufacturing Co.  
Burroughs Corporation  
CPC International Inc.  
  
Campbell Soup Company  
Campbell Taggart Inc.  
Carnation Company  
Chromalloy American Corp.  
Clark Equipment Company  
  
Colgate-Palmolive Company  
Combustion Engineering Inc.  
Consolidated Foods Corp.  
Continental Group  
Crown Cork & Seal Co. Inc.  
  
Dayco Corporation  
Diamond International Corp.  
Donnelley (R. R.) & Sons Co.  
Eagle-Picher Industries  
Ethyl Corp.  
  
GK Technologies Inc.  
General Electric Co.  
General Foods Corp.  
General Mills Inc.

General Tire & Rubber Co.  
Greyhound Corp.  
Harsco Corporation  
Heinz (H. J.) Company  
Hobart Corporation  
  
Ingersoll-Rand Company  
Interco Inc.  
Knight-Ridder Newspapers Inc.  
Kraft Inc.  
Mobil Corporation  
  
Norton Simon Inc.  
Owens-Illinois Inc.  
Peabody International Corp.  
Perkin-Elmer Corporation  
Pfizer Inc.  
  
Purex Industries, Inc.  
Quaker Oats Company  
Ralston Purina Company  
Richardson-Merrell Inc.  
Signode Corporation  
  
Sperry Corp.  
Squibb Corporation  
Standard Brands Inc.  
Standard Oil (Calif.)  
Sybron Corporation  
  
TRW Inc.  
Timken Company  
Upjohn Company  
Warner-Lambert Company

Forty-six "A" Ranked Industrials

Abbott Laboratories  
American Brands Inc.  
American Cyanamid Company  
American Greetings Corporation  
Anheuser-Busch Inc.  
  
Atlantic Richfield Company  
Avery International  
Bard (C. R.) Inc.  
Bearings Inc.  
Brown-Forman Distillers  
  
CPC International Inc.  
Cabot Corporation  
Campbell Soup Company  
Cities Service Company  
Combustion Engineering Inc.  
  
Conoco Inc.  
Dana Corporation  
Donnelley (R. R.) & Sons Co.  
Gannett Company  
General Foods Corporation  
  
General Signal Corporation  
Georgia-Pacific Corporation  
Gould Inc.

Harsco Corporation  
Hubbell (Harvey) Inc.  
Illinois Tool Works  
Interco Inc.  
Interpace Corporation  
  
Kerr-McGee Corporation  
Kimberly-Clark Corporation  
Knight-Ridder Newspapers Inc.  
Kraft Inc.  
Marathon Oil Company  
  
Media General  
Owens-Illinois Inc.  
Pillsbury Company  
Quaker Oats Company  
Raytheon Company  
  
Rubbermaid Inc.  
Signode Corporation  
Stanley Works  
Sun Company  
Sunbeam Corporation  
  
Union Camp Corporation  
Upjohn Company  
V. F. Corporation

Fifty-eight "A-" Ranked Industrials

AMF Inc.  
Albany International Corporation  
Allied Chemical Corporation  
American Can Company  
Ameron Inc.  
  
Angelica Corporation  
Belding Heminway  
Bowne & Company Inc.  
Burndy Corporation  
CBI Industries Inc.

Clark Equipment Company  
Consolidated Foods Corp.  
Conwood Corporation  
Corning Glass Works  
Dentsply International Inc.  
  
Diamond International Corp.  
Du Pont (E. I.) De Nemours  
Duro-Test Corporation  
Eaton Corporation  
Electronics Corp. of America

Fifty-eight "A-" Ranked Industrials (con'd.)

Esmark Inc.	Parker-Hannifin Corporation
General Tire & Rubber Company	Pennzoil Company
Goodyear Tire & Rubber Company	Perkin-Elmer Corporation
Gulf Oil Corporation	Purex Industries Inc.
Harcourt Brace Jovanovich	Smucker (J. M.) Company
Houghton Mifflin Company	Standex International Corp.
Huyck Corporation	Stepan Chemical Company
Ingersoll-Rand Company	Stride Rite Corporation
Johns-Manville Corporation	Sybron Corporation
Kennemetal Inc.	Syntex Corporation
Lee Enterprises	Tecumseh Products Company
Leggett & Platt Inc.	Toro Company
Lenox Inc.	Twin Disc Inc.
Maryland Cup Corporation	U. S. Shoe Corporation
Medtronic Inc.	VSI Corporation
Milton Bradley Company	Van Dorn Company
Motorola Inc.	Wallace Business Forms
Murray Ohio Manufacturing Co.	Weyerhaeuser Company
Nabisco Inc.	Wrigley (Wm.) Jr. Company

Common Stock Rankings by Standard & Poor's  
(Excerpted from Standard & Poor's Corporation Stock Guide)

Standard & Poor's point of departure in arriving at their rankings is a computerized scoring system based on per-share earnings and dividend records of the most recent ten years -- a period deemed long enough to measure significant time segments of secular growth, to capture indicators of basic change in trend as they develop, and to encompass the full peak-to-peak range of the business cycle. Basic scores are computed for earnings and dividends, then adjusted as indicated by a set of predetermined modifiers for growth, stability within long-term trend, and cyclicity. Adjusted scores for earnings and dividends are then combined to yield a final score.

Further, the ranking system makes allowance for the fact that, in general, corporate size imparts certain recognized advantages from an investment standpoint. Conversely, minimum size limits (in terms of corporate sales volume) are set for the various rankings, but the system provides for making exceptions where the score reflects an outstanding earnings/dividend record.

The final score for each stock is measured against a scoring matrix determined by analysis of the scores of a large and representative sample of stocks. The range of scores in the array of this sample has been aligned with the following ladder of rankings:

A+ Highest	B+ Average	C Lowest
A High	B Below average	D In reorgani-
A- Above average	B- Lower	zation

#### METHODS OF COMPUTATION

##### Return on Average Common Stock Equity (Schedules 7, 9, 11, and 13)

Rate of return is the ratio of net income less preferred dividends to the average of beginning- and end-of-year common equity.

Times Interest Charges Earned Before Income Taxes  
(Schedule 10)

Times interest charges earned is calculated in two ways. The first method represents the ratio of gross income including allowance for funds used during construction before the deduction of income taxes, to total interest charges net of profit on bond redemption and issue cost. The second method represents the same ratio, excluding allowance for funds used during construction from gross income.

Earnings/Price Ratios  
(Schedule 14)

Annual earnings/price ratios are the ratio of earnings per share for the fiscal (or calendar) year to the annual average market price for the same period, adjusted for stock splits and dividends. Quarterly earnings/price ratios reflect twelve months' earnings per share ending in the indicated quarter related to the quarterly averages of monthly high and low market prices per share, adjusted for stock splits and dividends.

Dividend Payout Ratios  
(Schedule 15)

Dividend payout ratios are the ratio of dividends per share to earnings per share for the fiscal (or calendar) year, adjusted for stock splits and dividends.

Dividend Yield  
(Schedule 16)

Annual dividend yields are the ratio of dividends per share for the fiscal (or calendar) year to average market price per share for the same period, adjusted for stock splits and dividends. Quarterly dividend yields reflect annualized quarterly dividends per share related to quarterly average market prices per share.

DISTRICT OF COLUMBIA

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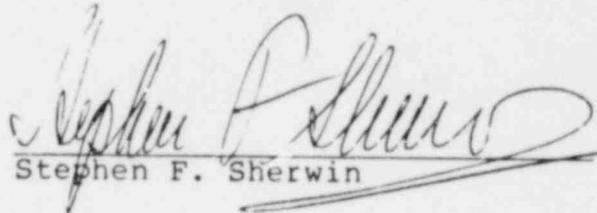
CITY OF WASHINGTON

)

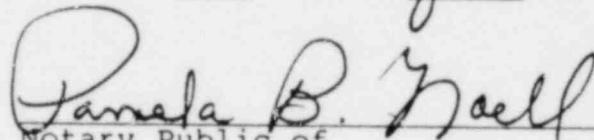
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SS:

Stephen F. Sherwin, being duly sworn, deposes and says that he has read the foregoing testimony, including the statistical exhibit, knows the contents thereof, and that the same are true as stated.

  
Stephen F. Sherwin

Subscribed and sworn to before  
me this 16<sup>th</sup> day of June, 1980.

  
Notary Public of  
the District of Columbia

My commission expires April 30, 1982.

QUESTION 3(g)

Provide a list of generating units, transmission and distribution facilities and general plant projects to be constructed during the period of construction of the subject nuclear power plant, showing the type of facility, net capacity for each generating unit, the dollar amounts to be expended for each facility during each of the years involved, and in-service date of each facility.

ANSWER 3(g)

See attached table.

3(g).

Unit	Unit Capability	In Service Date	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Allens Creek	1130MW	1991	\$ 65,401	\$ 117,059	\$ 179,550	\$ 218,282	\$ 259,488	\$ 243,372	\$ 249,405	\$ 212,237	\$ 147,829	\$ 109,474	\$ 39,487
South Texas #1	385MW	1984	32,048	38,516	32,718	19,963	10,056						
South Texas #2	385MW	1986	53,413	42,796	46,362	57,037	57,704	40,348	5,544				
W.A. Parish #7	551MW	1980	250										
W.A. Parish #8	540MW	1983	152,534	82,137	22,579								
Limestone #1	700MW	1987	42,000	88,000	135,000	180,000	220,000	169,000	19,925				
Limestone #2	700MW	1988	14,000	25,000	74,000	99,000	157,000	200,000	148,000	21,560			
Site X #1	600MW	1989	10,705	18,000	70,000	110,000	140,000	225,000	263,000	195,000	17,735		
Site X #2	600MW	1990		2,000	4,200	17,000	40,000	120,000	230,000	250,000	180,000	17,000	
Site X #3	600MW	1993						8,000	23,000	55,000	160,000	312,000	324,000
Site Y #1	600MW	1995								16,000	40,000	123,000	295,000
Site Y #2	600MW	1996									10,000	30,000	117,000
Site Y #3	600MW	1997										15,000	38,000
Improvements to Existing Plants			39,135	43,470	46,575	52,095	57,960	66,790	69,974	76,334	83,584	91,079	69,594
Purchase Sites			9,017	7,000						16,500	14,000		
Total Generation			418,503	463,978	611,984	753,377	942,208	1,072,511	1,006,840	842,631	653,248	697,553	883,081
Transmission			77,243	93,235	110,758	137,999	136,345	139,492	103,089	141,640	163,205	172,899	188,661
Distribution			152,625	146,830	157,316	165,405	172,272	181,765	185,034	201,488	208,747	221,563	231,216
General			42,405	54,575	67,081	69,074	68,836	77,598	47,321	45,395	48,256	47,353	45,790
Total Construction			690,776	758,618	947,139	1,125,855	1,319,661	1,471,367	1,344,292	1,231,154	1,073,576	1,139,368	1,348,748
Nuclear Fuel Expenditures			18,429	24,476	17,058	43,482	25,357	30,895	33,787	113,634	131,948	120,249	120,000
Total Capital Expenditures			\$ 709,205	\$ 783,094	\$ 964,197	\$ 1,169,337	\$ 1,345,018	\$ 1,502,262	\$ 1,378,079	\$ 1,344,788	\$ 1,205,524	\$ 1,249,617	\$ 1,468,748

QUESTION 3(h)

Complete the attached form entitled, "Financial Statistics" for the most recent 12-month period and for the years ended December 31, 1980, December 31, 1979 and December 31, 1978.

ANSWER 3(h)

See attached completed form.

ATTACHMENT FOR ITEM NO. 3.H  
FINANCIAL STATISTICS

	12 months' ended (dollars in millions)		
	1980	1979	1978
Earnings available to common equity	\$ 177	\$ 146	\$ 122
Average common equity	\$ 1,324	\$ 1,112	\$ 960
Rate of return on average common equity	13.39%	13.12%	12.71%
Times total interest earned before FIT:			
Gross income (both including and excluding AFDC) + current and deferred FIT + total interest charges + amortization of debt discount and expense			
Incl. AFUDC	3.56	3.64	3.62
Excl. AFUDC	3.17	3.13	3.30
Times long-term interest earned before FIT			
Gross income (both including and excluding AFDC) + current and deferred FIT + long-term interest charges + amortization of debt discount and expense			
Incl. AFUDC	3.67	3.69	3.78
Excl. AFUDC	3.26	3.18	3.44
Bond ratings (end of period)			
Standard and Poor's	AA	AA	AA
Moody's	A	AA	AA
Times interest and preferred dividends earned after FIT:			
Gross income (both including and excluding AFDC) + total interest charges + amortization of debt discount and expense + preferred dividends			
Incl. AFUDC	3.08	3.05	3.03
Excl. AFUDC	2.74	2.63	2.76
AFUDC	\$ 42	\$ 43	\$ 29
Net income after preferred dividends	\$ 177	\$ 146	\$ 122
%	23.9%	29.4%	23.5%
Market price of common	\$ 28.50	\$ 29.13	\$ 27.38
Book value of common	\$ 35.14	\$ 34.62	\$ 33.04
Market-book ratio (end of period)*	81.1%	84.1%	82.9%
Earnings avail. for common less AFDC + depreciation and amortization, deferred taxes, and invest. tax credit adjust. - deferred.			
	\$ 339	\$ 278	\$ 246
Common dividends	\$ 106	\$ 79	\$ 66
Ratio	3.21	3.51	3.74

ATTACHMENT FOR ITEM NO. 3.H  
FINANCIAL STATISTICS

	12 months' ended					
	(dollars in millions)					
	1980		1979		1978	
Short-term debt outstanding - end of period						
Bank loans	\$ 20		-		\$ 1	
Commercial paper	\$ 30		-			
Capitalization (Amount & Percent)						
Long-term debt (Incl. Current)	\$1,587	48%	\$1,482	51%	\$1,375	53%
Preferred stock	244	8	244	8	214	8
Common equity	1,452	44	1,208	41	1,010	39

\*If subsidiary company, use parent's data.