

Ex. _____ (KLE-1)
Docket Nos. UE-920433, UE-920499 and UE-921262
Witness: Kenneth L. Elgin

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

PETITION OF PUGET SOUND)
POWER & LIGHT COMPANY FOR AN)
ORDER REGARDING THE ACCOUNTING)
TREATMENT OF RESIDENTIAL)
EXCHANGE BENEFITS)

DOCKET NO. UE-920433

WASHINGTON UTILITIES AND)
TRANSPORTATION COMMISSION,)
Complainant,)

DOCKET NO. UE-920499

v.)

PUGET SOUND POWER & LIGHT)
COMPANY,)
Respondent.)

WASHINGTON UTILITIES AND)
TRANSPORTATION COMMISSION,)
Complainant,)

DOCKET NO. UE-921262

v.)

PUGET SOUND POWER & LIGHT)
COMPANY,)
Respondent.)

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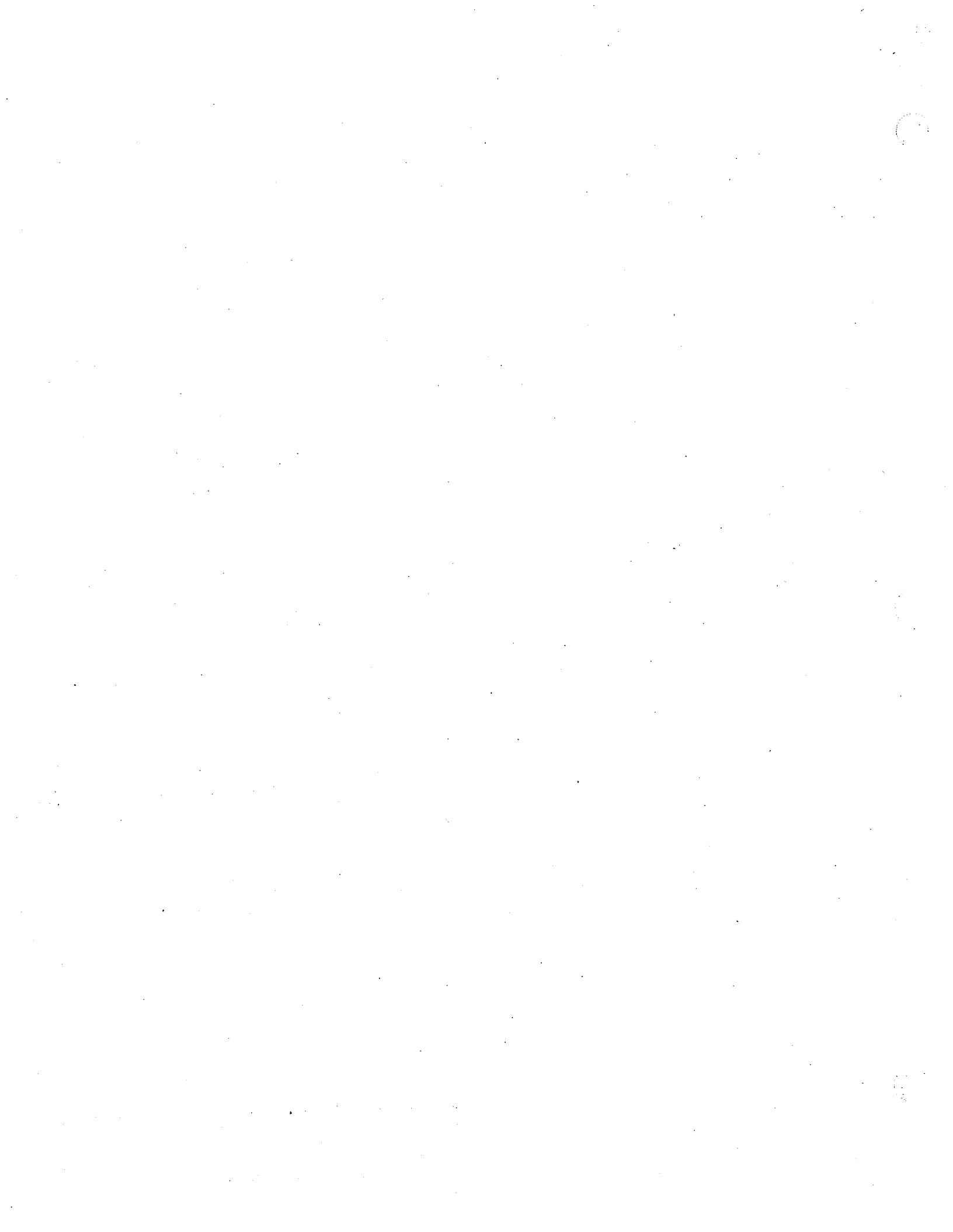
EXHIBIT OF

KENNETH L. ELGIN

WUTC STAFF

JUNE, 1991 ARTICLE FROM ELECTRICITY JOURNAL

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION
UE-920433; -920499;
No. -921262 Ex. 671v



Why Utility Stockholders Don't Need Financial Incentives to Support Demand-Side Management

Increased utility growth may boost gross earnings, but not per-share earnings. It's time to reward those who really need incentives to invest in efficiency — utility management.

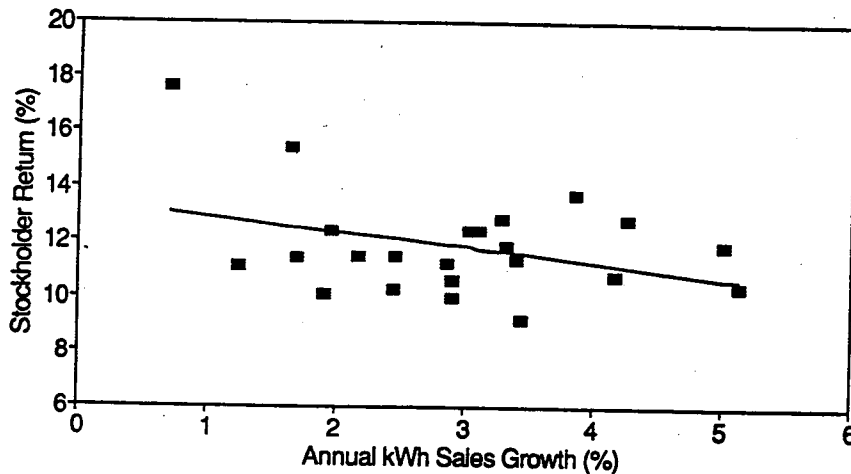
Steven G. Kihm

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Conventional wisdom says that if public utility commissions want utilities to support demand-side management (DSM), they have to offer financial incentives to reward those utilities for their DSM efforts. As the reasoning goes, since DSM reduces utility sales and plant growth, stockholders will be worse off when DSM is promoted if some sort of offsetting incentive is not available. John Rowe, chief executive officer of New England Electric System and a DSM-incentive advocate, has gone so far as to suggest that asking utilities to shrink their business opportunities via

DSM without providing incentives is in fact "un-American."¹ He is probably correct. American values typically celebrate growth as the key to economic prosperity. But there is a problem with this philosophy as it applies to utility growth and stockholder returns. There's no evidence that growth is, in general, good for utility stockholders. In fact, the evidence disputing the "growth is good for the stockholder" hypothesis is overwhelming. Take, for example, the results of a statistical study using data from 1969 through 1987 conducted by a Wall Street portfolio manager. This

Figure 1: Sales Growth and Stockholder Returns



Sources: Moody's Public Utility Manual and The Value Line Investment Survey.
 Note: Regression is significant at the 85% confidence level.

study found that while growth was important for some industries, it was *negatively* related to investment performance for utility stocks:

The discriminatory power of most of the variables has varied across economic sectors. For example, outperforming utilities [those utility stocks with highest stockholder returns] have had *lower* historical growth rates than their underperforming counterparts [those utility stocks with the lowest stockholder returns], whereas the opposite has been true for technology companies.² (Emphasis added.)

If low growth leads to better investment performance than high growth, stockholders should want the utility to control load growth with DSM programs. But let's not accept the results of one study without inspecting some additional data.

The following figures present growth and stockholder return information for the period from 1972 through 1989 for Moody's Electric Utilities, a set of 24 major U.S. electric utilities.³ Figure 1

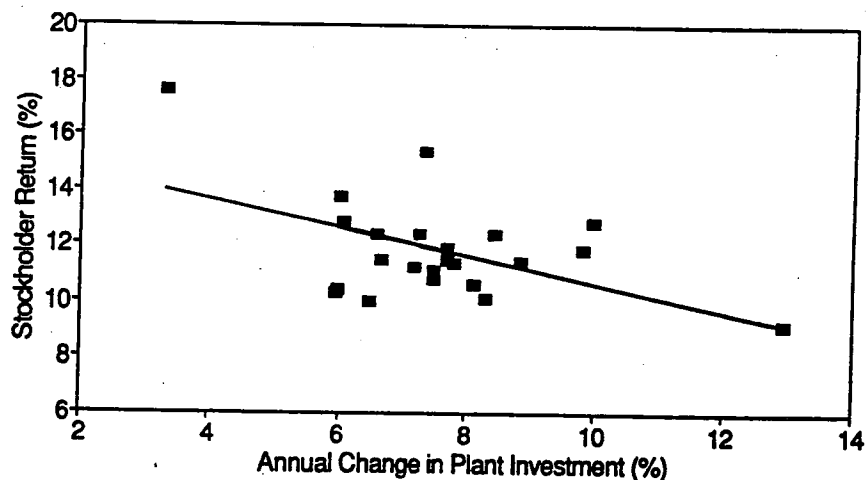
shows that, over the long run, kWh sales growth and stockholder returns are not positively related.⁴ In fact, there is a slight tendency for fast-growth utilities to earn less for their stockholders than slow-growth utilities. While the regression fit is far from perfect, the conclusion is quite clear.⁵ If sales growth was important to utility stockholders, we would find a statistically significant *positively-sloped* line. In Figure 1 this is clearly not the case.⁶

Next let's examine a different type of growth to see whether it is positively related to investment performance. Figure 2 shows the relationship between investment in net utility plant and shareholder returns. Again, we find a negative relationship between growth and stockholder returns. This means that contrary to what many have suggested, increasing utility plant investment leads to lower, not higher, stockholder returns. Based on this analysis, if DSM reduces the need to build utility plant and reducing plant growth benefits stockholders, why should stockholders oppose utility DSM efforts? In fact, might not stockholders want to pressure utility management to implement DSM programs on their behalf?

I. Explaining the Relationship Between Utility Growth and Stockholder Returns

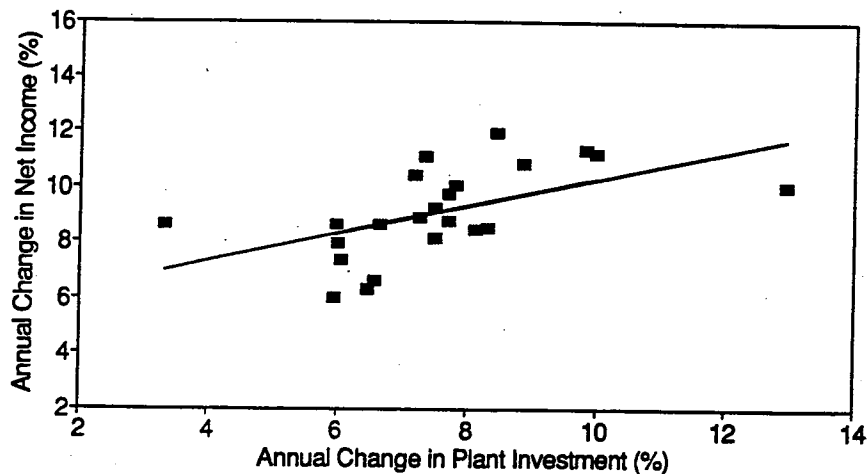
Some readers may be bewildered at this point. It seems so intuitive that growth should be

Figure 2: Plant Growth and Stockholder Returns



Source: The Value Line Investment Survey.
 Note: Regression is significant at the 98% confidence level.

Figure 3: Plant Growth and Earnings Growth



Source: The Value Line Investment Survey.
 Note: Regression is significant at the 99% confidence level.

good for stockholders. One reason that the truth does not conform with intuition is that the relationship between utility growth and stockholder returns is complex. The following examples shed some light on this relationship.

Utility growth does lead to positive increases in some important financial variables. For example, when a utility increases its investment in plant, its earnings tend to increase. This is shown in Figure 3. How can this be? We have already seen that increasing plant investment leads to *decreased* stockholder returns.

The confusion is due to the fact that we still don't have all the pieces of the puzzle before us. The missing link in the growth-return picture is that when a utility grows, it has to obtain funds from the capital markets. Figure 4 shows that, in addition to increasing earnings, increasing plant investment also leads to increases in

the number of shares of common stock outstanding.

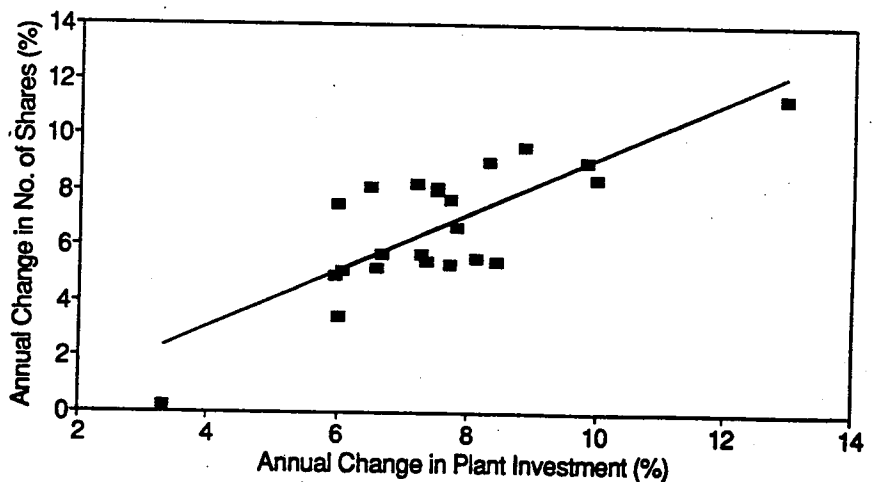
The increased number of shares of common stock dilutes the increased earnings from the plant investment. Thus while *earnings* generally increase when plant is built, *earnings per share* might not grow nearly as fast and might in fact decline when plant is added. The rate of growth in earnings per

share depends on how many shares of stock have to be issued to finance construction relative to the increase in the earnings from the new plant. In any case, as we see from examining Figure 5, growth in plant has not lead to greater earnings-per-share growth.

Again the weakness of the relationship should not be troubling. Whether the *negative* slope of the regression is statistically significant or not is not important; the key is that it is definitely not a statistically significant *positive* relationship. In other words there is no evidence that growth in plant investment increases earnings-per-share growth. Therefore, reducing the need for new plant with DSM programs will not slow earnings-per-share growth and will in fact probably lead to greater earnings-per-share growth.

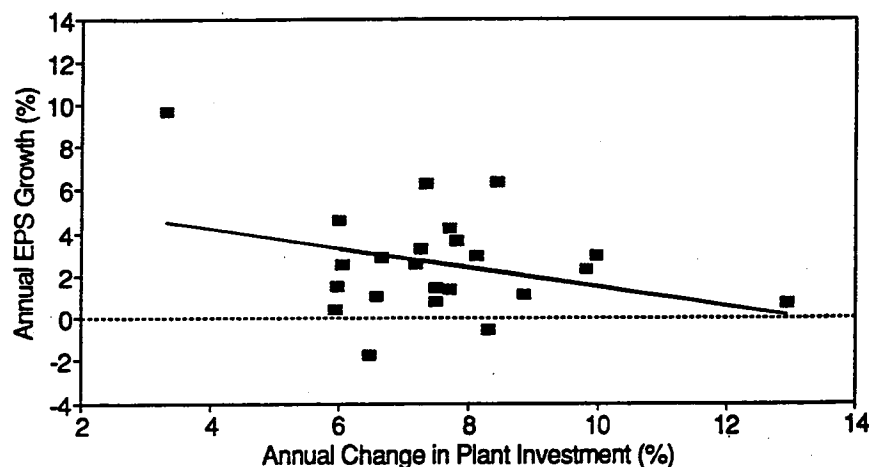
To complete the analysis we need to see one more figure, namely Figure 6. This figure shows the relationship between

Figure 4: Plant Growth and Share Growth



Source: The Value Line Investment Survey.
 Note: Regression is significant at the 99% confidence level.

Figure 5: Plant Growth and EPS Growth



Source: The Value Line Investment Survey.
 Note: Regression is significant at the 80% confidence level.

earnings-per-share growth and stockholder returns; earnings-per-share growth and stockholder returns are positively related, as we would expect:⁷ the greater a utility's earnings-per-share growth, the higher its stockholder return.

But as we have seen — and contrary to what our intuition might suggest — sales and plant growth do not necessarily lead to greater earnings-per-share growth. Rather, *reducing* sales and plant growth is more likely to *increase* earnings-per-share growth.⁸

The financial impact of utility growth may be summarized best in an analogy. Think of utility earnings as a pie. The existing stockholders share the pie equally. To increase the size of the pie, more stockholders have to be attracted to pay for the larger pie. While the size of the pie increases if more stockholders are added, the size of each individual stockholder's *piece of pie* may decrease if the number of new

stockholders increases disproportionately to the increase in the size of the pie. Stockholders don't always benefit just because the size of the pie (earnings) increases; they only benefit if their *piece* of the pie (earnings per share) increases.

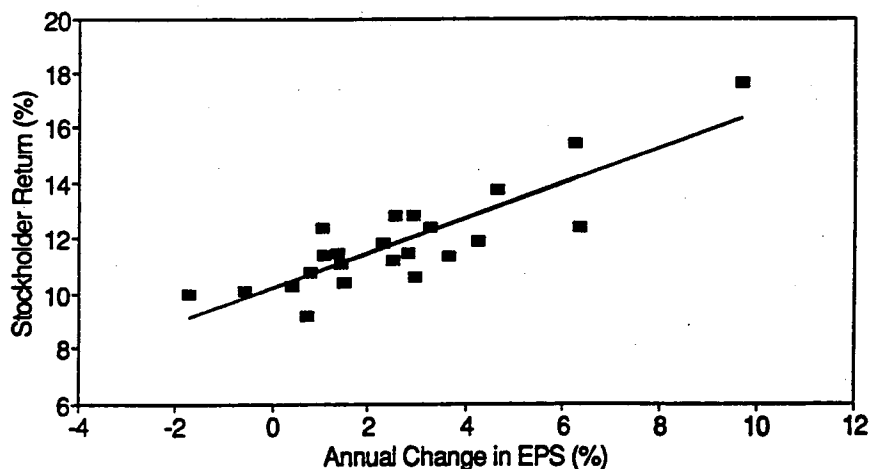
This concept is used by electric utility stock analysts in evaluating the attractiveness of stocks. Con-

sider the following comments about Delmarva Power's stock:

[T]he stock has less interest as a total return vehicle. As shown in the operating statistics . . . , last year's peak load was about 89% of Delmarva's generating capacity. That ratio is on the high side; most utilities strive for a ratio of 80% or less to ensure adequate supplies at peak periods. At the same time, load growth has been expanding at a good clip, reflecting the economic health of the service area. That means that capital outlays will have to remain high to finance the needed capacity increases. A fair amount of this capital will have to be obtained from public debt and equity offerings. The cost of this new capital may put a damper on share earnings and dividend growth at least through the 1993-95 period.⁹

Translation: this company is growing at a healthy rate which means it will have to add capacity in the near future. Capital to finance this new capacity will have to be raised externally. This will dilute earnings per share, which

Figure 6: EPS Growth and Stockholder Returns



Source: The Value Line Investment Survey.
 Note: Regression is significant at the 99% confidence level.

reduces the likelihood of earnings-per-share growth. This makes the stock unattractive to investors because the total return is likely to be low. In short: this stock is unattractive *because the utility is growing*.

II. The Myth Revisited

In view of the above, it is clear that simple examples showing that increasing kWh sales increases earnings, while true, do not tell us anything about the impact on utility stockholders.

Now consider the following quote from the leading study of this phenomenon: "Each KWH a utility sells, no matter how much it costs to produce or how little it sells for, adds to earnings."¹⁰

Note that there is no mention of *stockholder* impact, although many people might assume (incorrectly) that stockholders will benefit from the increased earnings. Analyses such as those contained in the quote above are incomplete in that they fail to acknowledge that increasing sales also increases the need for new plant, which in turn increases the need to issue common stock.

Because this chain reaction includes countervailing forces, over the long run earnings-per-share growth is not necessarily increased — indeed, according to the empirical evidence, is more likely to be reduced — when sales are increased. Since DSM programs help to avoid potential reductions in earnings-per-share growth, and thereby improve the potential for high investor returns, stockholders need not fear

and in fact should welcome utility DSM programs as being in their interest. Because DSM programs are more likely to benefit than harm utility stockholders, stockholders do not need to earn an additional incentive when DSM programs are implemented.

III. DSM and Stockholder Risk

Some utilities have used a non-growth-based argument to justify

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stockholder DSM incentives. They have claimed that utilities need financial incentives to promote DSM because demand-side resources are more risky than traditional supply-side resources. Under this assumption, a stockholder DSM incentive could be thought of as a return-on-equity risk premium. But the evidence does not support the need for this sort of risk premium either. For example, one scholar has found that DSM offers substantial flexi-

bility benefits over even the lowest-risk supply-side options (combustion turbines).¹¹ Some commissions have used evidence such as this to conclude that DSM is in fact less risky than supply-side options. For example, after investigating the risks of supply- and demand-side measures, the Vermont Public Service Board ordered utilities under its jurisdiction to give demand-side resources a 10% cost credit to reflect "the substantial risk and flexibility benefits of demand-side resources."¹² And the Wisconsin Commission found:

[R]ational investors should not view demand-side programs which limit electric sales growth rates as detrimental to their interests and indeed should welcome them as means to achieve *financial* stability as a result of net earnings growth and *reduced business risk*.¹³ (Emphasis added.)

This should not be surprising. The major finance lesson for utilities from the 1970s and 1980s is that building large-scale supply-side facilities is a risk-increasing proposition for electric utilities. DSM offers a means of mitigating that risk.¹⁴

Risk and expected return are considered by stockholders when evaluating investments. Because growth can increase risk and reduce expected returns, stockholders do not necessarily endorse the growth-seeking strategies often promoted by managers, as is evidenced by the following quote:

[A]n objective, independent investor could reasonably be expected to question the assumptions behind an open-ended commitment to growth, particularly if they seemed to be leading

to inappropriate investment decisions. Free to diversify and to invest in the competition, he or she is primarily interested in maximizing rates of return per unit of invested capital, for any given risk level, over an entire securities portfolio. Hence, the independent investor need not share management's preeminent concern for this particular company's growth and vitality.¹⁵

Since the evidence makes clear that electric utility stockholders do not need to receive incentives when a utility reduces its sales and plant growth with DSM programs, why do we find utility managers suggesting that such incentives are necessary? The answer, at least in part, is that many policy makers lack sufficient understanding of key financial principles.

IV. Management's Objectives and Incentives

It is probably true that some utility managers do not understand the complex relationship between sales growth and stockholder returns. But it's not only utility managers that have failed to understand the real impacts of growth on stockholders. As evidence of this rather widespread phenomenon, note the following quote from a financial analysis text:

Growth and the management of growth present special problems in financial planning, in part because *many executives see growth as something to be maximized.*

Their reasoning is simply that as growth increases, the firm's market share and profits should rise as well. From a financial perspective, however, growth is not always a blessing. Rapid growth

can put considerable strain on a company's resources, and unless management is aware of this effect and takes active steps to control it, rapid growth can lead to bankruptcy. Companies can literally grow broke. It is a sad truth that almost as many companies go bankrupt because they grow too fast as do those who grow too slowly.¹⁶ (Emphasis added.)

Again, it is evident that the relationship between growth and stockholder returns is poorly understood. But is it likely that electric utility executives simply misunderstand financial principles?

Generally, we do not find people boasting about working for the smallest, slowest-growing company in their area.

If we made all utility executives take a course in corporate finance, would the problem be solved? It may be that managers' growth-seeking behavior is not solely the result of insufficient financial training.

We have seen that growth is not necessarily good for utility stockholders. We must recognize, however, that growth in utility sales and plant tend to be good for *utility managers.* Analysis of salary and asset data for electric utilities shows a clear positive relationship between the salaries of chief executive officers of utilities and

the size of the utility:¹⁷ the more a utility grows, the faster managerial salaries increase. Some readers may suggest that the managers of larger utilities deserve higher salaries because they have greater responsibilities and their work is more complex. While this may be true, from the utility stockholders' perspective there is no benefit from the increase in utility size or complexity, or from increased managerial responsibility. From strictly a stockholder perspective, higher per-share earnings simply tend not to occur with faster utility growth.

At least as important to managers as their own, perhaps hidden incentive to grow is that managers tend to get psychic income from the size of their company.

Being human, most hired managers derive considerable satisfaction from achieving personal prestige and power. Both seem to be correlated more closely with the volume of a firm's sales than with the size or rate of profit it earns.¹⁸

Generally, we do not find people boasting about working for the smallest, slowest-growing company in their area. While many can name the biggest companies in their community, most do not know which companies have produced the highest stockholder returns. Since sales growth leads to increases in tangible, visible factors such as company size, which bring their own recognition, managers tend to want their companies to grow. It would not be surprising if this tendency were coupled with a belief and corporate credo that such

growth is good for shareholders, though we see empirically that such is generally not the case.¹⁹

There are also altruistic reasons that managers prefer growth to stagnancy. Growing firms offer more opportunities for employees. A primary reason upper management may see growth as important is that the potential for growth enables them to "attract and hold talented individuals."²⁰ Reducing growth affects not just upper management, but employees at all levels of the organization. With growth reduced, opportunities for advancement may be limited for many employees.²¹

Though all managers are aware of their preeminent responsibility to shareholders, if the corporate ethic holds that growth is good for earnings — and management looks no further — there is no need to confront the dual nature of growth: that what is good for managers and staff may not in fact be good for shareholders.

Indeed, when we look at managerial interests and compare them to the stockholders' interests we

see some serious differences. These differences are known as "principal-agent conflicts."²² Instead of being the single-objective, shareholder-wealth-maximizing manager assumed by abstract economic theory, real managers have multiple objectives. Some of these are consistent with stockholder objectives and some are not.

The key point is that it is managerial interests, not stockholder interests, that provide the "need" for utilities to grow. This suggests that focusing on DSM incentives for stockholders misses the mark. If any incentives are needed, they should focus on utility managers or utility employees.

V. DSM Incentives for Utility Managers and Employees

If utility employees are harmed either economically or psychologically by growth-reducing DSM programs, it is understandable that those employees are very unlikely to support such activities. But what if we offered incentive compensation to the utility em-

ployees for successful DSM efforts?

Such an approach has been adopted by the Public Service Commission of Wisconsin in the recent Wisconsin Electric Power Company (WEPCO) case. In its order the Commission set up a \$500,000 fund for employee bonuses to be paid to employees who successfully promote demand-side measures. The Commission found that the purpose of the bonus package is to "... accelerate the change in its [WEPCO's] corporate culture to an integrated least-cost planning entity..."²³ The Commission also refused to approve WEPCO's proposed DSM incentive for shareholders. This is a Commission that has recognized where the real disincentive to DSM promotion lies.

There is, of course, a different approach that can be taken. Since DSM does not harm and probably benefits stockholders, why not simply order utilities to implement DSM without any incentive package? If the managers are recalcitrant and do not implement DSM in good faith, return on equity penalties can be applied in future rate cases. Although it provides no comfort to management, this "stick" approach may be appropriate in some cases.

VI. Conclusion

With many state commissions considering providing shareholder incentives for utility DSM investments and performance, it is time for regulators to focus on the evidence: reducing growth via DSM programs is not likely to



Utility managers must smell the cheese.

harm and probably will benefit electric utility shareholders.

Utility managers and employees, however, may be hurt when utility sales growth is reduced. In light of the evidence, if DSM incentives are to be used they should focus on the managers and employees of the utility, not the stockholders. ■

Footnotes:

1. J. W. Rowe, *Making Conservation Pay: The NEES Experience*, THE ELEC. J., Dec. 1990, at 20.
2. R. C. Jones, *Designing Factor Models for Different Types of Stock: What's Good for the Goose Ain't Always Good for the Gander*, FIN. ANAL. J., Mar./Apr. 1990, at 28.
3. For a complete list of Moody's Electric Utilities, see MOODY'S PUB. UTIL. MANUAL. Data for Centerior Energy, one of the Moody's Electric Utilities, are not presented here because that company's stock did not exist for the entire 1972-1989 period.
4. Stockholder returns are the geometric average of annual total returns over the 1972-1989 period. This method is consistent with investor wealth accumulation under dividend reinvestment. See R. A. HAUGEN, MODERN INVESTMENT THEORY 25 (Prentice-Hall 1986).
5. While all graphs and regressions presented here are bivariate in nature, the conclusions have been confirmed with multiple regression analysis as well.
6. Statistical significance is a subjective determination which is left to the reader to determine.
7. According to financial theory, even an increase in earnings per share is not sufficient to increase the value of a company's stock. See R. BREALEY AND S. MYERS, PRINCIPLES OF CORPORATE FINANCE 54 (McGraw-Hill 1984). Nonetheless in practice in the electric utility industry, earnings-per-share growth

has, in general, been positively related to stockholder returns.

8. For a discussion of how earnings per share can increase dramatically in a slow-growth environment, see S. G. Kihm, "Do Electric Utilities Need Financial Incentives to Promote Demand-Side Measures? Investor and Managerial Perspectives," presented at The National Association of Regulatory Utility Commissioners' Third National Conference on Integrated Utility Planning, Santa Fe, N. M., Apr. 1991.

9. THE VALUE LINE INVESTMENT SURVEY 174, Sept. 21, 1990.



10. D. MOSKOVITZ, PROFITS AND PROGRESS THROUGH LEAST-COST PLANNING 2 (Natl. Assn. of Reg. Util. Commissioners, Nov. 1989).
11. E. Hirst, *Flexibility Benefits of Demand-Side Programs in Electric Utility Planning*, THE ENERGY JOURNAL, Jan. 1990, at 151-65.
12. Vt. Pub. Serv. Bd., "Re: Least-Cost Investments, Energy Efficiency, Conservation, and Management of Demand for Energy," June 22, 1990, at 433.
13. Pub. Serv. Comm. of Wisc., Findings of Fact, Conclusions of Law and Order - Docket 05-EP-5, Apr. 6, 1989, at 30.

14. This implies that stockholders can be made whole financially with a lower return on equity (ROE) when DSM is promoted.

15. G. DONALDSON, MANAGING CORPORATE WEALTH 40-41 (Praeger 1984).

16. R. C. HIGGINS, ANALYSIS FOR FINANCIAL MANAGEMENT 15 (R. D. Irwin 1989).

17. See "Executive Compensation Scoreboard," Business Week, May 7, 1990, at 104-108; D. Marder, "Special Report: Executive Incentive Compensation," THE ELEC. J., Dec. 1990, at 33-36; and PUB. UTIL. REP., THE P.U.R. ANALYSIS OF INVESTOR-OWNED ELECTRIC AND GAS UTILITIES (1990).

18. F.M. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE (Houghton-Mifflin 1980).

19. For an interesting example of the conflict between management's goal to increase company size and stockholder desires to maximize total return, see D. B. Hilder and R. Smith, "Will GE Topple IBM's Long Reign as Stock-Market Value King?," The Wall Street Journal, July 23, 1990, at C 1.

20. See Donaldson, *supra* note 15 at 28.

21. Of course, an aggressive DSM program would also create opportunities for employees. Demand-side programs tend to be people intensive relative to supply-side options. Transferring to the DSM department may not be attractive, however, to an electrical engineer interested in building power plants.

22. For a discussion of agency theory see A. BARNEA, R. A. HAUGEN AND L. W. SENBET, AGENCY PROBLEMS AND FINANCIAL CONTRACTING (Prentice-Hall 1985); H. J. LEIBENSTEIN, BEYOND ECONOMIC MAN (Harv. U. Press 1976); and M. C. Jensen and W. H. Meckling, *The Theory of the Firm: Managerial Behavior, Agency Cost and Ownership Structure*, J. OF FIN. ECON., Vol. 3, 1976, at 305-60.

23. "WEPCO Incentive Earnings Show Gains as Conservation Savings Near 250 MW," Elec. Util. Week, Jan. 28, 1991 at 15.