RATE REGULATION IN THE SOLID WASTE DISPOSAL INDUSTRY:
A REVIEW OF STANDARDS AND PERFORMANCE

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I. INTRODUCTION

The trash collection industry is an integral part of urban, suburban and much of rural living in America.[1] Though fees for trash collection are often as high as telephone bills in many jurisdictions, there is very little public awareness of how the industry works, how rates are set, and whether they are fair and reasonable. This paper is about how the industry is organized and regulated, how rates are set, and whether rates are likely to be fair and reasonable to ratepayers given the challenges involved.

The industry at the local level is typically organized into four separate functions. **Curbside collectors** collect trash door-to-door, they deliver the trash to a **transfer station** for repacking into **long haul trucks, railcars, or barges**, for shipment to a final destination **landfill**. The industry's basic revenue stream is from trash disposal fees at each stage; each intermediate stage taking a share of the fees paid by the producer of the waste at the curbside.

In recent times, given the changing economics of trash, embellishments have arisen in some places to modify this

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[1] This paper will deal entirely with local non-toxic, non-hazardous solid waste. The bulk of the empirical data is drawn from Oregon and Washington.

model. The push toward recycling is the most important of these. Many jurisdictions require households to separate potentially recyclable materials at the curbside, the most usual split being glass, plastics, and recyclable paper versus other waste.

When curbside separation is not required, there may be separation and recycling at the transfer station. More recently there is also a tendency in some high volume jurisdictions for "materials recycling facilities" (MRFs or "merfs") to spring up.

Curbside collection companies may operate their own merfs in the form of a "pre-transfer" station. Trucks from the curbside routes will tip onto "the floor" at a merf, the recyclable component will be extracted and perhaps processed by employees with or without specialized machinery, and the remainder will be repacked for shipment to a transfer station.

Other non-affiliated MRFs are independent ventures which contract for waste flows for sorting, while still others will take and pay for loads on a load-by-load inspection basis. Frequently this latter type of MRF will specialize in construction, demolition, and non-hazardous industrial process waste, which is often collected in a parallel but independent process.[2]

The ups and downs of recycling depends on five factors: The cost of disposal; costs of separation; sale value of

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[2] The "drop box" part of the industry provides industrial, commercial and multi-unit residential collection by means of "dempty-dumpsters."

separated materials; the cost of materials processing; volume for economies of scale; and compaction technology.

Cost of Disposal Profitability of recycling operations depends on the margin between costs saved through reducing the tonnage going through the process ending at the landfill, and revenues from the sale of the separated and perhaps processed materials less the cost of separation.

Cost of Separation The character of the waste stream, how much of the waste stream has been separated at the curbside, whether the incoming waste has already been scavenged, and the level of investment in sophisticated technology that is justified, all are factors in determining the cost of separation.[3]

Sale Value of Separated Materials Prices of separated materials vary a good deal, though not always with any apparent logic.[4] In order to maximize revenues from sale of separated materials, some MRFs have begun to build storage capacity to protect themselves against, and take advantage of, market swings.

Volume Volume is an important factor in the industry, since it involves revenues, costs, and economies of scale and scope.

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[3] In one four acre transfer station building in the Portland area, for example, there is a machine for grinding up discarded telephone poles and another for producing pellets used for boiler feed out of otherwise unrecyclable paper mill wastes.

[4] When paper prices were recently at an all time high, for example, recycled paper prices were low.

Compaction Technology The cost of truck transportation is sensitive to weight, but is much more sensitive to volume, especially in the long haul segments of the process. The industry has responded by developing compaction methods which sharply reduce volume and number of trips, and landfill space requirements.

II. INDUSTRY ORGANIZATION

The organization of the industry in terms of firms, competition, and regulation is complex and interesting. Firms of all sizes appear at each stage in the process, from small mom and pop operations with a truck or two, to multinational corporations like Waste Management Inc. and its various subsidiaries.

The industry is also characterized by complex ownership patterns. A single relatively small local firm will often own an array of other small firms in all stages of the process and in diverse jurisdictions. Large firms owning landfills may be vertically integrated through curbside collection, transfer, and long haul trucking. Other forms of contract relations: joint ventures, consortiums, partnerships, etc., are common in the industry.[5] All together the industry is characterized by a complex web of affiliations and vertical and horizontal arrangements of all sorts.[6]

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[5] See, for example, "State, National Senators Battle Over Pierce County Garbage Issues." *Solid Waste Digest* (January 1996), p.1.

[6] In some jurisdictions some or all of these functions may be provided by local government entities.

Due to this fabric of affiliated entities and multistage contract arrangements, prices at any stage of the process cannot be considered to embody competitive protections for customers. This is to say that price discrimination is rampant in many places in the industry, and contracts covering several stages of the process and/or multiple jurisdictions are often written to disguise cost responsibility, disadvantage competitors, or increase rates to customers.

III. THE INSTITUTIONS OF STATE AND LOCAL REGULATION

Enter regulation. In many states, Oregon for example, curbside collectors, transfer stations, and landfills are regulated at the local level.[7] The basis for this regulation is generally a local franchise allowing the enterprise to perform the function within the jurisdiction.[8]

The essence of the franchise is the sale by the public to the corporation or other business entity of the right to use the public streets for business, in exchange for a greater or lesser degree of control over the prices charged customers, along

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[7] With state and federal regulation of environmental matters.

[8] On municipal franchises generally see, McQuillen, *Municipal Corporations*, chapter 34. See also, Colton & Sheehan, "Raising Local Revenue Through Utility Franchise Fees: When the Fee Fits, Foot It." 21 *The Urban Lawyer* 55 (1989), reprinted in Freilich and Bushek, eds., *Exactions, Impact Fees and Dedications: Shaping Land-Use Development and Funding Infrastructure in the Dolan Era*. Chicago: American Bar Association (1995) p.233ff. For an older but more comprehensive background on franchises around the turn of the century (when they were the central form of utility regulation) see, Delos F. Wilcox, *Municipal Franchises*, New York: McGraw-Hill (1910).

with a fee paid to the local government, usually in proportion to gross revenues, tonnage, or some similar measure.

In Oregon, cities, counties and some combined governments franchise curbside collectors, transfer stations and landfills. State level rate regulation of intrastate long haul trucking operations has been pre-empted at the federal level by the Airport Improvement Act (effective January 1, 1995)[9], and is currently not rate regulated, at least directly. In Washington, the regulatory structure is somewhat different, as illustrated in Table 1.

IV. REGULATORY STANDARDS

There are three major standards for rate regulation current in the solid waste industry in Washington and Oregon today: Traditional rate of return regulation used, for example, by Metro in the three-county area around Portland, the old trucking industry operating ratio method used in many local jurisdictions, and the modified operating ratio method (Lurito-Gallagher) used in Washington state by the Washington Utilities and Transportation Commission (WUTC) for curbside haulers and by some local governments. The advantages and disadvantages of each of these three methods are analyzed and compared in what follows.

A. Traditional Rate of Return Regulation

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[9] Federal Aviation Authorization Act of 1994 (PL 103-305) Section 601ff.

Under traditional public utility rate of return (ROR) regulation, the franchisee's revenue requirement is made up of three components:

★ Just and reasonable expenses

★ Return *of* capital in the form of depreciation

★ Return *on* capital invested including interest on debt and a reasonable return on equity.

Analytically this can be presented in the form of the equations as illustrated in Table 2.

Table 1 SOLID WASTE REGULATION IN WASHINGTON STATE			
	Regulatory Responsibility		
Function	State WUTC	Counties	Cities
Curbside Collection			
Inside City	City Option		City Option
Outside City	X		
Transfer Station			
Local Government-Owned		X	X
City or County Contract		X	X
Private Company	X note 1		
Long Haul	X note 2		
Landfill			
Government-Owned		X	X
City or County Contract		X	X
Private Company	X note 1		

SOURCE: Conversation with Layne Demas, WUTC.

Note 1: For transfer stations and landfills which are affiliated with regulated curbside collectors, the WUTC imputes an appropriate rate for the service. For regulated, but not affiliated, curbside haulers the rate is essentially unregulated.

Note 2: Due to federal pre-emption there is no rate regulation.

Data Requirements   In the traditional model data requirements include information on expenses, depreciation, and capital structure from the regulated entity, as well as a determination of the market rate of return on equity for businesses of similar risk. See Table 3.

Regulatory Workload   In terms of regulatory workload, some methodologies are better than others, both in terms of the amount of supervision required and the amount of ongoing analytical work necessary to provide external input to the regulatory model. Under all three of the forms of regulation considered here regulators have the burden of ensuring through supervision that costs, revenues, debt service and overhead are properly allocated between affiliated entities.

As to expenses, under traditional rate of return there has to be supervision to ensure that unnecessary expenses are not incurred. Though this is a serious task, it is less onerous under traditional regulation (where there is no direct connection between expense levels and return on investment), than under the operating ratio standard (where higher expense levels result in higher returns, thereby providing an incentive to the franchisee to overstate and expand expenses).[10]

Determination of ROE   Traditional regulation does require the determination of a fair and reasonable rate of return on equity as an external input to the regulatory model. This is a significant task and often controversial, though it is paralleled in the

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[10]   To illustrate: Under the operating ratio standard if the selected operating ratio is 90% and expenses are $90 margin will be $10. On the other hand, if expenses are $900, then margin will be $100.

Eq. No.	Variable	Equals
	Table 2 **TRADITIONAL RATE OF RETURN REGULATION**	
(1)	Revenue Requirement	Operating Expenses + Capital Cost Recovery + Return on Rate Base
(2)	Capital Cost Recovery	Depreciation
(3)	Return on Rate Base	Return on Debt Capital + Return on Equity Investment + Income Tax Adjustment
(4)	Rate Base	Unrecovered Capital Investment[11] + Working Capital[12]
(5)	$Return on Debt Capital	Prudent Interest Expense
(6)	$$Return on Equity	$$ Equity Capital X Market ROE
(7)	Income Tax Adjustment	[1/(1-FIT-SIT) X $$Return on Equity] - $$Return on Equity[13]

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[11] Unrecovered capital investment is investment at original cost, less accumulated depreciation, plus new capital; it is derived from the franchisee's capital cost recovery schedule.

[12] Working Capital is defined as current assets less current liabilities.

PAGE [13] FIT is federal income tax; SIT is state income tax.

Item	Rate of Return	Operating Ratio	Lurito-Gallagher
TABLE 3 COMPARISON OF DATA REQUIREMENTS			
Expense and Investment Allocations	Yes	Yes	Yes
Expense Detail	Yes	Yes	Yes
Depreciation Schedule	Yes		
Capital Structure	Yes		Yes
Interest on Debts Schedule	Yes		
Return on Equity Calculation	Yes		
Income Tax Schedule	Yes		
Determination of Proper Operating Ratio		Yes	Yes
Determination of Turnover Ratio		Yes	Yes
Calculation of Lurito-Gallagher Formula		Yes	Yes

operating cost models by the need to determine the appropriate operating ratio.

B. Operating Ratio Method

Locklin, in his classic *Economics of Transportation*, reviews the background of the operating ratio as a regulatory standard:

> "The operating-ratio standard has also been used commonly by state regulatory commissions in regulating the rates of motor carriers. Its use instead of a return-on-investment standard arises from the peculiarities of the motor-carrier industry. Investment is so small relative to the volume of business done that the margin of revenues over expenses required to pay a normal rate of return on capital invested would be so small that a slight miscalculation of probable revenues or expenses could leave the carrier with revenues insufficient to pay operating expenses."[14]

The operating ratio approach is classic cost plus ratemaking.[15] The revenue requirement is set equal to expenses plus a margin. Out of this margin the franchisee has to cover interest, taxes and return on equity. Up until about 1988 the State of Washington regulated curbside collectors outside cities (though not transfer stations) under this system.[16]

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[14] D. Philip Locklin, *The Economics of Transportation*, Homewood, IL: Irwin, 1972, 711. Locklin goes on to describe a situation where a 10 percent return results in an operating margin of 98% by way of illustration of the magnitudes involved.

[15] The operating ratio is the ratio of operating expenses divided by revenues.

[16] After 1988 a modified operating ratio system was adopted based on the work of consultants Lurito and Gallagher.

The operating ratio standard has two major characteristics. It provides a very high rate of return on capital to cushion the supposedly high ratio of revenues and expenses to capital:

> "The operating-ratio standard has been criticized as no standard at all * * * . The argument overlooks the purpose of using the operating ratio. The particular operating ratio deemed reasonable is not chosen for the purpose of providing an adequate return on capital invested, but for the purpose of providing a margin of revenues over expenses that is not in danger of disappearing entirely if changes in revenues or expenses occur."[17]

Secondly, an operating ratio system is easy to administer. If the regulator has many entities to regulate--in Washington there are about 80 solid waste haulers regulated by the commission--then the use of this method saves a lot of time and regulatory effort, since the appropriate operating ratio once determined is applied to all regulated entities within the class. Unfortunately, this ease of administration is clearly at the expense of high ROEs and poor correspondence with basic regulatory principles.[18]

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[17] D. Philip Locklin, *The Economics of Transportation*, Homewood, IL: Irwin, 1972, 710-11.

[18] For instance, the need for symmetry between the franchisee's right to an adequate return on equity (ROE) and the right of ratepayers to pay no more in rates than necessary to produce a just and reasonable rate of return. See, *Jersey Central Power and Light Co. v. F.E.R.C.*, 810 F.2d 1168, 1191 (D.C. Cir. 1987), and, *Federal Power Commission v. Hope Natural Gas*, 64 S.Ct. 281, 288 (1944). The franchisee is entitled to no more than a rate of return sufficient to "assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital." *Hope*, at 288. Moreover, "regulation does not insure

The operating ratio method is also subject to a variety of practical problems.

Cost Plus The magnitude of a franchisee's rate of return depends on the magnitude of its expenses. There is no incentive to conserve on expenses; "goldplating" is encouraged since goldplating of expenses leads not only to recoupment of the cost of the goldplate, but also higher profits. (Note that it is not the same under traditional regulation, where profit is not tied to expense levels). To control this perverse incentive structure and keep rates reasonable the regulator's expense audit function has to be stronger and more rigorous.

Minimizes Investment Under the operating ratio system once the margin is set for the industry, all franchisees have an incentive to minimize capital costs. Profits increase as capital is reduced so long as penalties are not incurred for bad service. This is so for two reasons: First, if there is no debt investment then interest payments are not a charge on margin-- the whole margin is then return to equity. Second, if margin does not fall--other things equal--when equity investment is drawn out of the enterprise and invested elsewhere, then the franchisee can get **both** the margin, **plus** the return from the alternative investment--the franchisee gets its cake and eats it too.

Capricious Variation Among Regulated Entities Firms in the industry will vary with respect to investment and

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that the business shall produce net revenues." *Hope* at 288. On the other hand, the whole purpose of regulation is to protect the ratepayer from excessive charges by regulated monopolies.

capital structure. An operating ratio set for the industry at large will mean that some regulated firms will receive higher rates of return on investment and equity than other firms. This variation will not be related either to superior management nor to the fundamental principle of rate regulation: "(r)eturn to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."[19] The operating ratio method does not, and does not purport to, provide commensurate returns among entities based on risk.

Determining the Ratio The WUTC for many years used a 93-4% operating ratio for all types of haulers. Later the Commission switched to 91% operating ratio for long haul carriers[20] and a 95% ratio for local cartage carriers within the City of Seattle, the significant difference being justified on the basis of the purportedly proportionately higher investment among long haul carriers. The task of determining what the ratio should be was involved and substantial, as one would expect.[21] In Washington the ratio has apparently not been changed since to reflect year to year changes in capital markets of even substantial magnitudes, nor changes in state and federal income tax rates.

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[19] *Duquesne Light Co. v. Barasch*, 109 S.Ct 609, 619 (1989).

[20] State regulation of long haul carriers has since been preempted, as noted above.

[21] Locklin, id at 710-11; Richard J. Lurito and Kenneth F. Gallagher, *Regulation of the Garbage and Refuse Collection Industry in the State of Washington: An Analysis and Appraisal*, testimony on behalf of the WUTC, Docket TG-2016 (October 1987).

In Oregon, several counties and cities use the operating ratio approach or some variant of it. Washington County's method for solid waste haulers is based on a margin of 8 to 12%, i.e. an operating ratio of 88% to 92%.[22] This seems quite high against a backdrop of the rates of return this probably implies, especially in the context of the WUTC's decision to reduce the margin allowed for Washington haulers from 93-4% down to 95% for curbside haulers.[23]

C. Lurito-Gallagher

The Lurito-Gallagher (L-G) methodology is characterized by the WUTC as a "modified operating ratio" standard. The methodology was developed by Richard Lurito and Kenneth Gallagher for the WUTC in a 1987 docket (TG-2016). Its purpose was to modify and improve the commission's pre-existing operating ratio method.

Lurito and Gallagher see the local solid waste hauling industry as having four relevant characteristics:

★   A lack of relevant financial data;

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[22] Conversation with Lynne Storz, Solid Waste Management Coordinator, (648-8609). The Washington County system has some interesting features. Limits are set on "related party salaries," for example, and expenses are limited to the mean plus one standard deviation. Storz has also created a strong annual reporting form for use by the haulers, and will institute a standard system of accounts for use by the franchisees by the end of this year.

[23] Remember that the terminology is to give the operating ratio as the ratio of costs to total revenues and then to allow the hauler to raise rates to the point where expenses are "only" "X" percent of the total. Thus a movement from 93% to 95% actually implies a *reduction* in margin from 7% to 5%..

★ No financial markets that reflect the market value of their securities;

★ Limited capital investment; and,

★ The existence of non-capital investment by entrepreneurs.[24]

The basic equation in the Lurito and Gallagher standard is set forth in Table 4.

The problem is that the WUTC's regulatory goal is to *establish* the operating ratio. If they don't know either the operating ratio (and so its complement, the profit margin) or the rate of return on capital, they only have the capital turnover ratio to work with, which is not sufficient to determine anything by itself.[25]

Table 4 TRADITIONAL RATE OF RETURN REGULATION		
Eq. No.	Variable	Equals
(8)	P/K	R/K * P/R
Where:		
(9)	P	Profit in dollars

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[24] Lurito and Gallagher, at p.24.

[25] And, since the revenue requirement ("R") is also to be set in the regulatory process, this leaves only capital "K".

(10)	K	Capital[26]
(11)	P/K	Rate of return on capital
(12)	R	Revenue
(13)	R/K	Capital turnover ratio
(14)	P/R	Profit margin (1 - operating ratio)[27]

Lurito and Gallagher (L-G) attempt to get around this problem econometrically by estimating a statistical relationship between the capital turnover ratio and the profit margin.

"(I)f a group of firms operating in several industries is in financial and operating equilibrium, the empirical relationship between their capital turnover ratios and their profit margins will allow us to determine what constitutes an appropriate operating ratio (or profit margin) for a given firm (or industry) whose cost of capital (rate of return on capital) cannot be measured directly."[28]

They go on to say:

"(T)he rate of return on capital can be indirectly measured if a strong empirical relationship can be established

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[26] There is some ambiguity as to whether "K" stands for all capital or just equity.

[27] "Profit margin" is not to be confused with the rate of return on capital.

[28] Richard J. Lurito and Kenneth F. Gallagher, *Regulation of the Garbage and Refuse Collection Industry in the State of Washington: An Analysis and Appraisal*, testimony on behalf of the WUTC, Docket TG-2016 (October 1987), p.26.

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between the capital turnover ratio and the profit margin. Knowledge of this relationship would permit the equilibrium profit margin to be accurately estimated, given information on the capital turnover ratio." Id at 26.

The idea is that if an "appropriate" profit margin can be determined from the capital turnover ratio, then the rate of return can be determined from those two via the relationship set forth in L-G's basic equation (Equation 8, Table 4).

This search for a relationship between the capital turnover ratio and the profit margin has to be focused either on the local solid waste trucking industry or on some other group of companies. Lurito and Gallagher found the local industry unsuitable since the relationship between capital turnover ratio and the profit margin would have been conditioned by past regulation and so would be circular. What they chose was ten years of data from 198 firms from around the country in regulated electric, telephone, water, natural gas, trucking and airline industries for the period 1968-1977.[29]

Using this data they regressed before tax profit margin against the capital turnover ratio to come up with a regression equation; this equation is the key to the Lurito-Gallagher method.[30]

Having "solved" the econometric problem, L-G then calculated the local industry's **weighted average** capital turnover ratio and plugged this into the regression equation from the regulated industries database. This produced L-G's

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[29] Id. at 29.

[30] $\ln (P/R) = 5.67537 - 0.68367 \ln (R/K)$. Lurito & Gallagher testimony, id at 32.

4.5% estimate of the "appropriate" before tax profit margin for all firms in the local solid waste hauling industry.[31]

Lurito and Gallagher also testified in WUTC Dockets TG-900657 and TG-900658 in 1991-2. There they recommended that the L-G method be modified to *increase* returns by 75 basis points over those suggested by the 1968-77 regression.[32]

D. Evaluation

The Lurito-Gallagher methodology has the same flaws as the basic operating ratio method discussed in the last section, as acknowledged in part by Lurito and Gallagher themselves:

> "In this context it should be noted that one of the less desirable features of operating ratio regulation is that the regulated entity's dollar profit is directly related to the level of its expenses, viz, the higher the level of expense, the higher the profit. Putting it somewhat differently, operating ratio regulation provides a disincentive for efficient cost control."[33]

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[31] Id at 32.

[32] They also recommended that the actual capital structure of each individual firm be used instead of the industry average to derive the firm's revenue requirement; both recommendations were adopted by the Commission. Decision and Orders in *WUTC v. Sno-King Garbage Company*, and *WUTC v. Northwest Garbage Company*, Dockets Nos. TG-900657 and TG-900658. January 8, 1992, p.8.

[33] Richard J. Lurito and Kenneth F. Gallagher, *Regulation of the Garbage and Refuse Collection Industry in the State of Washington: An Analysis and Appraisal*, testimony on behalf of the WUTC, Docket TG-2016 (October 1987), p.38.

Lurito, Gallagher, and Locklin have all noted that affiliated transactions abuses where excessive costs--especially "overhead" costs--are allocated to an operating subsidiary are always a particular threat under an operating ratio standard, since, as we have seen above, return on capital depends on expense levels.[34]

The methodology developed by Lurito and Gallagher is idiosyncratic in another respect. The operating ratio method--if it is suitable at all--is suitable only for industries where total capital investment is dwarfed by revenues. Yet Lurito and Gallagher used data from the highly capital intensive utility industry to estimate their regression equation for use in the supposedly lightly capitalized solid waste trucking industry. If they are indeed correct about the high capital turnover ratios of the local haulers, then this was an odd choice.

Finally, the Lurito-Gallagher method has the further difficulty of producing very high rates of return on investment when compared with rates of return currently being earned by similarly franchised and rate regulated utilities.[35] (Refer to Table 5).

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[34] Id at 48. D. Philip Locklin, *The Economics of Transportation*, Homewood, IL: Irwin, 1972, 710-11.

[35] In the 11-13% range for return on equity and 9-11% range for overall return.

TABLE 5 LURITO-GALLAGHER FORMULAE ILLUSTRATION OF RATE OF RETURN RESULTS				
Item	Investment			
	$1 million	$2 Million	$3 Million	$4 Million
Before Tax Return on Equity	41.55%	31.52%	27.06%	23.99%
After Tax Return on Equity	27.42%	20.76%	17.86%	15.83%

Source: WUTC Revised Exhibit I-1. op.cit.

V. CONCLUSIONS: RATEMAKING AND PUBLIC PROTECTION

Public vulnerability to price gouging, price discrimination and other related abuses is greatest when the charges are

relatively small to each consumer, where industry providers hold official or de facto monopolies, when there is a lack of

public interest (giving rise to "inertia" rents), and when the industry is characterized by a high level of affiliations and other

forms of inbreeding among industry players at all levels. Weak regulation, especially when the regulatory jurisdiction is

less centralized than a significant portion of the industry, increases the likelihood of abuse.[36]

The economics of trash are changing. If current trends continue, rates facing ratepayers will rise significantly as the costs of disposal rise, and the industry continues its trend toward consolidation, holding companies and vertical and horizontal integration.

Regulation can be strengthened if the public can be educated to participate in the regulatory process. The tendency toward increasing secrecy in the process of local regulation in the face of public interest should be resisted and reversed.

The use of the operating ratio methodology should give way to the use of the more sophisticated techniques associated with traditional rate of return regulation. And the good work being done in a number of jurisdictions toward developing a uniform system of financial reporting for rate regulated firms should be expanded and unified across jurisdictions.

And as with regulation of other utilities, fees to the regulating entity should be sufficient to cover the cost of an

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[36] For a discussion of holding company abuses in the utility context see, for example, "Why Ramsey Pricing is Wrong: The Case of Telecommunications Regulation." Journal of Economic Issues (March 1991); Sheehan, "Corporate Control and the Decapitalization of Subsidiary Corporations: The Looting of the Bangor and Aroostook Railroad." Journal of Economic Issues, September 1988; Sheehan, "Law and Economic Policy: The Institutionalist Contribution." In Warren Samuels ed., Handbook of Evolutionary and Institutional Economics (M.E. Sharpe, ??); and "Monopoly, the Holding Company, and Asset Stripping: The Case of Yellow Pages," Journal of Economic Issues, (March 1992) (Equal authors with Evan White), and references cited in these articles.

adequate degree of regulatory oversight in a formal process in which the public is allowed to participate.[37]

Proper and cost effective waste disposal is important to a well run and competitive society. Given the universal need for the service provided by this industry, to allow these firms to extract monopoly rents, and to allow price discrimination among customers, is to reduce the efficiency and welfare of all other participants in our society.

The purpose of regulation is to protect the public from excessive charges by regulated monopolists. Much needs to be done in this rapidly evolving industry to eliminate abuses and protect the public's interest in efficient service at no higher than necessary rates.

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[37] So, for instance, the model should be that of the regulation of electric, natural gas, and telecommunications utilities, where the process is formal and open to the public; and not the process prevalent in the insurance industry, where in many jurisdictions regulation is done behind closed doors and the public is not invited.

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