

Service Date: May 7, 1980

DEPARTMENT OF PUBLIC SERVICE REGULATION  
BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MONTANA

In the Matter of the Application by	)	UTILITY DIVISION
the GREAT FALLS GAS COMPANY for	)	
authority to adopt increased rates for	)	Docket No. 6701
natural gas service in the State of	)	
Montana.	)	Order No. 4602a

APPEARANCES

FOR THE APPLICANT:

Richard F. Gallagher, Church, Harris, Johnson & Williams, P.O. Box 1645, Great Falls, Montana 59403, on behalf of Great Falls Gas Company

INTERVENORS:

James C. Paine, Montana Consumer Counsel, 34 West Sixth Avenue, Helena, Montana 59601

Frank Buckley, Montana Consumer Counsel, 34 West Sixth Avenue, Helena, Montana 59601

William Weigel, Department of Defense, Assistant Staff Judge Advocate, 341 CSG/JA, Malmstrom Air Force Base, Montana 59402

FOR THE COMMISSION:

Calvin K. Simshaw, Staff Counsel  
Dan Elliott, Administrator, Utility Division  
Judith M. Curtis, Economist, Utility Division

BEFORE:

GORDON E. BOLLINGER, Chairman  
CLYDE JARVIS, Commissioner  
THOMAS J. SCHNEIDER, Commissioner  
JAMES R. SHEA, Commissioner  
GEORGE TURMAN, Commissioner

FINDINGS OF FACT

PART A

General

1. On July 27, 1979, the Great Falls Gas Company (GFG, Company or Applicant) filed with the Commission its application for authority to increase rates for natural gas service. If approved in their entirety, the proposed rates would generate additional test year revenues of \$673,715.

2. The application was assigned Docket No. 6701. A Notice of Pre-hearing Conference was issued on August 15, 1979. At the conference held August 27, 1979, rules for the disposition of the case were formulated including rules of procedure, discovery, intervention and other related matters. The public hearing was scheduled for January 8, 1980 at 10:00 a.m. A procedural order was issued September 4, 1979.

3. On January 4, 1980, GFG applied to the Commission for an interim rate increase in the full amount of \$673,715.

4. Commencing on January 8, 1980 and continuing through January 10, 1980 the public hearing was held in the Civic Center in Great Falls, Montana. Testimony and exhibits were received from company witnesses, witnesses for the Montana Consumer Counsel and public witnesses.

5. At the hearing, Intervenor Montana Consumer Counsel, through its witness, John W. Wilson, conceded that an increase of \$275,311 in annual revenue would be justified in this case.

6. On January 28, 1980 the Commission granted an interim rate increase of \$275,311 based on a lifeline rate structure stipulated to by the parties.

7. On March 24, 1980 the transcript was received from the Court Reporter.

8. Briefs were filed April 14, 1980 and reply briefs were filed on April 22, 1980.

PART B  
RATE OF RETURN  
Capital Structure

9. Testifying on behalf of the Applicant, Dr. Richard K. Smith used the Company's actual year-end 1978 capitalization, adjusted to reflect the anticipated November, 1979 issue of industrial revenue bonds, in making his rate of return recommendation. This capital structure is the following:

	<u>Amount</u>	<u>Percent of Capitalization</u>
Long-term Debt	\$2,957,000	52.2
Common Stock	<u>2,710,000</u>	<u>47.8</u>
TOTAL	\$5,667,000	100.0

10. Dr. Caroline M. Smith, the Consumer Counsel's rate of return witness, employed the same capitalization as R. K. Smith with a further adjustment to equity which excluded the Company's investment in nonutility subsidiaries. The resulting capital structure consists of:

	<u>Amount</u>	<u>Percent of Capitalization</u>
Long-Term Debt	\$2,957,000	54.8
Common Stock	<u>2,438,000</u>	<u>45.2</u>
TOTAL	\$5,395,000	100.0

Her adjustment was premised on the argument that Montana Sun and Vesta, the subsidiaries, "do not contribute to the provision of gas distribution utility service, and retail gas utility customers should not pay the higher return requirements resulting from the subsidiaries." (Exh. C, p. SS.)

11. The Commission is persuaded that the capital structure used to determine a fair rate of return should be based on the most recent capitalization available. In the instant case, that structure is the amounts of capital booked by Applicant as of December 31, 1978 with outstanding debt including industrial revenue bonds sold in November, 1979. Further, the Commission finds that equity capital should be reduced by the amount of Applicant's investment in nonutility subsidiaries for the reasons enunciated by C. M. Smith. The proper capital structure, then, is:

	<u>Amount</u>	<u>Percent of Capitalization</u>
Long-term Debt	\$2,957,000	54.8

Common Stock	<u>2,438,000</u>	<u>45.2</u>
TOTAL	\$5,395,000	100.0

Cost of Long-term Debt

12. In his direct testimony filed with the Company's application, R. K. Smith determined the embedded cost of long-term debt to be 8.07 percent. (See Exh. 21.) C. M. Smith accepted this cost in computing her rate of return recommendation.

13. Following the issuance of industrial revenue bonds in November, 1979, R. K. Smith recomputed the debt cost as 8.15 percent. The upward revision resulted from the substitution of actual costs for estimated on the 1979 bond issue and from recognition that payments on the 1976 bonds are made monthly, not semiannually.

14. For each issue of industrial revenue bonds, the coupon rate rises over the life of the Issue. Cross-examination by Consumer Counsel revealed that the interest rates R. K. Smith associated with the industrial revenue bonds had been computed using the internal rate of return method which averages the annual rates. Because both issues are "young" relative to their 20-year lives, this method overstates the annual costs incurred during the test year.

15. The Commission believes that bond expenses should be matched to the period being considered, not averaged over the remaining life of the bond. Accordingly, the Commission finds that the proper cost for the 1976 industrial revenue bond issue is \$36,044 and \$142,213 for the 1979 issue; both of these costs include amortization of issuance expenses over 20 Years.

16. The cost of long-term debt is found to be 7.09 percent determined as follows:

Cost of Company

	<u>Amount</u>	<u>Annual Amount</u>	<u>Percent</u>
First Mortgage Bonds			
5 ½ percent, due 1980	\$ 213,000	\$ 12,120	5.69
5 1/8 percent, due 1985	364,000	19,292	5.30
Industrial Revenue Bonds			
1976 issue	480,000	36,044	7.51
1979 issue	<u>1,900,000</u>	<u>142,213</u>	<u>7.48</u>
TOTALS	\$2,957,000	\$209,669	7.09

### Cost of Common Equity

17. Both R. K. Smith and C. M. Smith presented testimony on the cost of equity capital to the Great Falls Gas Company. Their testimonies were similar in that each placed prime importance on discounted cash flow (DCF) analysis of equity cost and relied on a group of comparable companies rather than Great Falls alone in determining cost.

18. According to the DCF methodology, marginal investors price a share of common stock at a level equal to the present value of expected dividends over the period which they hold the security plus the discounted resale price anticipated upon sale. If dividends are assumed to grow at a constant rate, the discount rate or investors' required rate of return is equal to the dividend yield plus that constant growth rate.

19. R. K. Smith used a group of 20 gas distribution utilities with 1978 revenues between \$5 million and \$100 million in deriving his return on equity recommendation. Applying the DCF methodology, he combined a dividend yield of 8.98 percent with his estimate for dividend growth of 6 percent to determine an investors' required return of 15 percent.

20. In contrast, C. M. Smith based her DCF analysis on a study of 16 utilities which derived at least 80 percent of their revenues from residential, commercial and industrial natural gas customers in 1976 and which were listed in Value Line's Investment Survey. For those 16 companies, a cost of equity equal to 12.5 to 13.5 percent was found by adding a 9 percent dividend yield to an expected growth rate for dividends of 3.5 to 4.5 percent.

21. Both Drs. Smith recognized the possibility that the required return for equity investors in Great Falls Gas might differ from the industry average due to perceived differences in risk. R. K. Smith argued that risk could be quantified in three measures: the standard deviation of the percentage changes in earnings per share over the past ten years, the ratio of common equity to total capital, and the ratio of common equity to total assets. In a comparison of Great Falls Gas with the 20 companies, R. K. Smith found that the former was at least as risky as the group.

22. C. M. Smith's analysis of differential risk relied upon an algebraic model which quantified "the combined effect of investors perceptions about all of the risk factors important to them in determining their return requirement." (Exh. C, p. 37.) By applying this model, C. M. Smith determined that investors view Great Falls Gas as more risky than the other 16 firms from the industry; to compensate for the higher risk, they required a return of 13.3 percent.

23. Although their industry groups differed, both witnesses found very similar dividend yields. Their differing equity costs before adjustment for risks were due to the higher expectation of dividend growth found by R. K. Smith. He claimed to derive his estimate of  $g$  from a consideration of five "principles and guidelines" listed on pages 10 through 12 of Exhibit 6. How the principles and guidelines were weighted to arrive at a single estimate of expected dividend growth is unclear. Only Principle 5 involves a formula which quantified  $g$ ; therein, Smith multiplied the industry's median earnings retention rate for 1978 by its median return on equity capital to derive an expected growth rate for dividends. Median values for 1978 were used despite his earlier observation (in Principle 4) that the payout ratio had experienced a secular decline, implying a rise in the proportion of earnings retained.

In her testimony, C.M. Smith observes:

In order to contribute to informed judgments, analysts are obliged to explain cogently and unambiguously how they arrived at their conclusions -- what factors were used; how they were weighted; and how they were combined in arriving at the end result. Quite obviously, when the end result is a numerical value, as in rate of return analysis, there had to be a logical progression of calculations from which it was derived. This procedure should be made explicit so that it can be evaluated. If it remains cloaked and unexplained, the resulting assertions have little value to regulators who must render judgments as to the validity of the analyst's opinion. (Exh. 6, p. 20.)

The Commission deems her statement pertinent and further finds that R. K. Smith has failed to make explicit the method by which his five guidelines were used to produce a single estimate of expected dividend growth.

24. Following her own advice, C. M. Smith fully described the procedure she used in estimating the investors' expectation of dividend growth. Her estimate was based on a correlation analysis of observed growth in earnings, dividends and book values with yields. Growth rates for ten time periods ranging from one to ten years were employed. Examination of the rates finds most clustered in the range from 3.5 to 4.5 percent. Further, the correlation analysis suggests that investors give greater weight to dividend and book value growth than growth in earnings when estimating future dividend prospects. The weighted growth rates for dividends and book values both approximate 4 percent, the midpoint of the range for  $g$  used by C. M. Smith.

25. The Commission finds that C. M. Smith has properly relied on a DCF methodology to estimate the cost of common equity for the natural gas industry. The dividend yield component is based on recent market data while her estimate of growth explicitly considers historic trends which investors need rely on as a guide to the future.

26. C. M. Smith correctly notes that the return required by stockholders in Great Falls Gas may differ from the Industry average due to perceived differences in risk. To allow for this possibility, she has formulated an algebraic model which can quantify the effect of the risk differential on equity cost. While no error is found in her algebra, the Commission agrees with R. K. Smith that C. M. Smith has miscalculated one of the variables in her equation. Specifically, the dividend growth rate for Great Falls Gas should be 4.63 percent. (Exh. 23, p. 16.) As R. K. Smith recognized, this change lowers the predicted yield for Great Falls Gas and increases its cost of equity capital to 13.47 percent.

27. In Exhibit CMS-9, C. M. Smith tested the consistency of her return recommendation with the current price of Great Falls Gas stock and the return investors are expecting in the long-term future. R. K. Smith has properly criticized C. M. Smith for computing past equity returns on year-end, rather than average, equity. Using the formula derived on page 1 of Exhibit CMS-9 and substituting the equity cost of 13.47 percent determined in the immediately preceding Finding of Fact, the long-term expected return which results is 11.1 percent. This value compares with an 11.2 percent return on average equity for the years 1968 through 1978. The similarity of the two numbers suggests the experienced return to common stockholders in the recent past is consistent with a current cost of equity equal to 13.5 percent.

28. The Commission finds that the cost of common equity for the Great Falls Gas Company is 13.5 percent. By relying on a discounted cash flow analysis to determine cost, the Commission has met the standards established by the Hope and Bluefield decision that the return be comparable to those earned by businesses with similar risk and allow the company to attract capital and maintain its credit.

Cost of Capital

29. The Great Falls Gas Company has a cost of capital equal to 9.99 percent determined as follows:

<u>Type of Capital</u>	<u>Amount</u>	<u>Percent of Capitalization</u>	<u>Cost</u>	<u>Weighted Cost</u>
Long-Term Debt	\$2,957,000	54.8	7.09%	3.89%
Common Stock	<u>2,438,000</u>	<u>45.2</u>	13.5 %	<u>6.10%</u>
TOTAL	\$5,395,000	100.0		9.99%

A rate of return equal to this cost is fair and reasonable.

PART C

Cost of Service and Rate Base

30. The cost of service and rate base witnesses for the Applicant were Thomas P. Brunetto, from the firm of Stone & Webster Management Consultants, Inc., and Robert W. Creek, Vice President, Secretary and Treasurer of the GFG. Brunetto and Creek testified to the correct method of determining gas sales volumes and Creek testified to all other company proposed adjustments. Company President, Larry D. Geske, testified to the general impact of these adjustments. The Montana Consumer Counsel employed Dr. John W. Wilson of the firm J. W. Wilson L Associates, Inc., as its witness; who testified to all cost of service and rate base adjustments.

31. General areas to be discussed are as follows:

- a. Sales Volumes
- b. Payroll Adjustments
- c. Computer Expense
- d. Deferred taxes

Other adjustments have been agreed to by the parties and scrutinized by the Commission, and are therefore accepted. Included in this category are adjustments made to include the West Loop project included in test year amounts at original cost and use of an average 1978 test year. Adjustments proposed by Creek in his supplemental testimony for increased uncollectible accounts expense, a reduction of general administrative expenses credited to cost of service and increased property insurance expense are rejected. These amounts were not included in the Company's application or the Commission's notice of public hearing.

32. The adjustment to gas sales volume made in the direct testimony of GFG witness Creek (Exh. 41, RWC-3) and MCC witness Wilson (Exh. D, Schedule 2) involve the projection of actual 1978 sales to a normalized 1979 sales volume. Both adjustments include explicit projections of number of customers based on the 1973 to 1978 trend. Implicitly projected were the effects on discretionary load of changes in conservation, real income, production, and a myriad of other factors inherent to the trend in consumption.

33. These adjustments made by Creek and Wilson are not accepted. The Commission maintains, as it has in the past, that actual test year values are preferred. Departure from the test year values would result in inconsistencies in relation to test year operating revenues, capital structure, etc.

34. For purposes of normalizing test year discretionary load for climatic conditions the projection techniques of Creek and Wilson, and the rebuttal testimony of GFG witness Brunetto (Exhs. 55-57) were reviewed for statistical properties and accuracy. The Commission found that the semi log linear regression model proposed by Brunetto superior to Wilson's double log regression, as well as Creek's trending. Although Brunetto's regression equations were found unstable in the long run, a review of the statistical properties and a backcast revealed that over the relevant range his equations could be expected to reflect a more accurate portrayal of the relationship between degree days and discretionary consumption.

Q. What are the implications of using a less accurate model to adjust historical data?

- A. The implications can best be demonstrated graphically. Exhibit TPB-2 is a graph of actual (.), Dr. Wilson's double 109 model estimates (+) and the more accurate semi 109 model estimates (\*), of historical residential gas sales. This exhibit shows that the double log model does not predict what actually occurred as well as the semi log model. In fact the double log model has a mean absolute error of 2.97 Mcf per customer while the semi log model's mean absolute error was only 1.72 Mcf per customer over the historical period of 1973 to 1978. Thus, a basic question arises as to the reasonableness of adjusting historical test period data with results from a model that cannot estimate the historical period, over which it was calculated, as exact as other model forms. (Brunetto Rebuttal, p. 5.)

35. Wilson's use of a 30 year degree-day average ending in 1978 is preferred to Creek's average ending in 1977. The Commission also finds that Wilson's procedure (with Brunetto's semi log equations) for normalizing the Air Force Base and Housing Authority sales volumes preferred to that proposed by Creek.

36. The baseload adjustment made by Wilson computed on a 1973 to 1978 average is not accepted. The 1978 amount used by Creek matches test year conditions and also constitutes the most recently available relevant information.

37. Wilson's method of computing operating revenue from his adjusted sales levels is not accepted. He applies a ratio of his sales divided by company sales to company revenues to compute his operating revenues. To properly compute sales revenues the Commission has applied its adjusted volumes to consumption historically experienced in each block. This method is inconsistent with that of the Applicant and is more precise than a ratio. (See Creek Rebuttal, p. 3 II. 5-14).

38. Adjustments made to payroll expense by Creek include test year wages adjusted forward to year-end levels and adjustment of this year-end figure upward by 7 percent to reflect wage increases effective in July, 1979. Wilson does not include the 7 percent adjustment in his wage expense. The Commission finds Creek's adjustment acceptable because it quantifies a change that is known and measurable within a reasonable period from the end of the test year.

Under the minimum rate case filing standards, adjustments to the twelve month historical test year are permitted when based on changes which are known with certainty and measurable with reasonable accuracy (Rule S-14210). My testimony, page 4, lines 18 through 26 and page 5, lines 1 through 6, attests this was the criteria used in computing the wage adjustment. (Creek, Rebuttal p. 4.)

Creek also makes an adjustment to Customer Accounts Expense to reflect the hiring of three additional people. The Commission finds this adjustment unnecessary because increased uncollectible accounts expense has been proposed by GFG and allowed in this order. It flies in the face of reason to hire three additional people in the customer accounts area and expect a rise in uncollectible accounts. The Commission has chosen to allow the increased uncollectibles rather than additional payroll expense because it is cheaper for the ratepayer.

39. An adjustment for increased computer expense has been included by Creek to reflect the lease of a new computer. Wilson has excluded this adjustment:

In addition, I have removed the \$15,120 computer cost adjustment proposed by the Company in view of the fact that the upgrading of computer technology is clearly a factor which may serve to increase efficiency and productivity in an offsetting manner subsequent to the test-year. Again, this appears to be a one-sided inflationary adjustment which is inappropriate in the absence of any clear recognition of the offsetting and countervailing efficiencies and cost savings which may follow from the availability and operation of improved computer technology. (Wilson Direct p. 33.)

The Commission finds this reasoning persuasive and accepts Wilson's adjustment.

40. Operating expenses are adjusted by \$00 to recognize rate case expenses amortized over a two year period.

41. Dr. Wilson makes an adjustment to accumulated deferred income taxes to amortize over two years the difference between the reserve computed at the current 46 percent tax rate and the reserve computed at the old tax rate of 48 percent. Under the Company's accounting method a 48 percent balance would never be returned to the ratepayers:

However, now that the federal corporation income tax rate has been reduced from 48% to 46% a \$1 difference between book and tax depreciation will cause only 46¢ to be removed from accumulated deferred income taxes. Hence, while 48¢ flowed into deferred taxes, only 46¢ will flow out for each \$1 tax/book expense difference. The result is a deferred tax reserve which is now too large in size by 2/48ths of the accumulated tax balance. (Wilson Direct p. 36.)

The Commission finds this reasoning compelling and accepts the Wilson adjustment.

42. After adjusting revenues and expenses for the above differences the Commission finds a revenue deficiency of \$14,235.

SCHEDULE 1

Commission Normalized Sales Volumes

	(Mcf)
Residential	2,793,166
Commercial	2,053,953
Housing Authority	41,079
AFB	796,567
Phillips	<u>195,600</u>
	5,880,365

SCHEDULE 2

Gas Costs Computed Using 5,880,365 Mcf's

	<u>Mcf</u>	<u>Rate</u>	<u>Gas Costs</u>
Residential	2,793,166	1.633610	4,562,944
Commercial	2,053,953	1.777972	3,651,871
Industrial	195,953	2.147807	420,111
Housing Authority	41,079	1.633610	67,107
AFB	796,567	2.147807	1,710,872
Company Use	244,399	.507061	<u>123,925</u>
			10,536,830

SCHEDULE 3

Operating Revenues

Class	Block Ending (Mcf)	Block Factor	Block Consumption	Bills	Present Rate	Revenue	Total
Residential	1	8.708%	243,229	237,732	\$4.1634	989,773	
	100	91.137	2,545,608		2.0744	5,280,609	
	300	.141	3,938		1.8354	7,228	
	1,000	<u>0.014</u>	<u>391</u>		1.6934	<u>662</u>	
	<b>Total</b>		<b>100%</b>		<b><u>2,793,166</u></b>		
Housing Authority			<u>41,079</u>		1.7006	69,860	69,860
Commercial	1	1.109	22,778	22,584	4.3078	97,287	
	100	43.046	884,145		2.2188	1,961,740	
	300	20.764	426,482		1.9798	844,351	
	6,000	17.563	360,737		1.8378	662,960	
	Balance	17.518	<u>359,811</u>		1.7898	<u>643,991</u>	
			<u>1,053,953</u>			<u>4,210,329</u>	4,210,329
Phillips			<u>195,600</u>		2.193907	429,128	429,128
Malmstrom			300,000		2.193907	658,175	1,741,635
			<u>496,567</u>		2.181907	<u>1,083,463</u>	
			<u>796,567</u>			1,741,635	
<b>Total</b>			<b><u>5,880,365</u></b>				<b><u>32,729,224</u></b>

SCHEDULE 4

Adjusted Net Income

	Actual 1978	Commission Adjustment	Adjusted 1978
Operating Revenues	13,303,440	(574,216)	\$12,729,224
Cost of Service:			
Gas Expenses	10,908,083	(370,435)	10,537,630
Other O & M	1,280,759	102,158	1,382,917
Depreciation	193,226	36,515	229,741
Taxes			
Nonincome	110,335	23,378	137,733
FIT-Current	261,299	(230,481)	30,818
FIT-Deferred	7,812	41,444	49,256
State Income Tax	43,024	(27,394)	15,630
TOTAL	12,804,558	(420,833)	12,383,725
Deferred Tax Amortization	-0-	8,378	8,378
Utility Operating Income	498,882	(145,005)	353,877
Rate Base	4,206,199	1,242,077	5,630,276
Rate of Return	11.86%		6.285%

## SCHEDULE 5

### Revenue Deficiency

1.	Rate Base, Adjusted	\$5,630,276
	Overall Rate of Return	<u>9.99%</u>
	Required Return	\$ 562,465
	Less: Return at Present Rates	<u>\$ 353,877</u>
	Return Deficiency	\$ 208,688
	Tax Conversion Factor	<u>.50355</u>
	Revenue Deficiency	<u>\$ 414,235</u>

## PART D

### RATE STRUCTURE

#### Cost Allocation

43. Testimony on cost allocation generally consisted of two contrasting proposals. Applicant's witness, Mr. Richard J. Rudden of Stone and Webster Management Consultants, Inc., presented a traditional cost of service study utilizing the Atlantic Seaboard methodology with a flat monthly service charge. Montana Consumer Counsel witness, J. W. Wilson of J. W. Wilson and Associates, presented a system wide volumetric allocation of costs with or without a service charge.

44. The Atlantic Seaboard allocation of cost responsibility entails arbitrarily assigning 50 percent of the system plant costs to peak demand and 50 percent to commodity participation. The volumetric allocation implies 100 percent commodity cost responsibility.

45. At issue here is system capacity utilization. Is the GFG system a system generally constrained by physical capacity or commodity scarcity? If the system costs are dominated by capacity related investments then the appropriate cost allocation would dictate responsibility to demand factors. However, if the costs are dominated by gas supply then a greater weighting of commodity costs is the correct approach.

46. Mr. Rudden argues that the GFG system is confronted with insufficient capacity as well as a plentiful commodity supply:

With respect to gas supply, MPC has not, to my knowledge, indicated that it will be unable to provide GFG with all the gas it needs at any point in the foreseeable future. Therefore, an alleged gas supply shortage does not appear to be a relevant argument in support of volumetric cost allocations... Regarding the capacity of the GFG system, it is very clear...that GFG has not had adequate capacity as manifested in the pressure problems the system encountered in the winter of 1978-79.

It is evident that the system does not have adequate capacity, that the West Loop project is designed to improve that capacity deficiency, and that one of the primary reasons for GFG applying for a rate increase is the cost of improving system capacity and reliability for meeting system peak requirements. Consequently, peak responsibility is an important factor in assessing cost responsibility and is an equitable consideration for rate design. ( Exh. 52, DD. 3 & 4.)

However, under cross-examination, when questioned to the status of the system capacity pursuant to completion of the West Loop Main, Mr. Rudden responded:

It solved the major problems of Great Falls Gas system as I understand they exist, yes. However, there continue to be others which is evidence that capacity problems still are resident to the Great Falls Gas distribution system. (Trans. p. 185.)

47. Dr. Wilson based his proposed volumetric allocation on the premise that the system capacity is generally sufficient:

[I]n the gas industry, capacity is generally ample (indeed, as limited supplies shrink, it will become excessive) and gas is storable (so as to facilitate the meeting of peaks) but limited in long-term quantity. Under these circumstances, the optimally efficient economic pricing solution is to give the sunk costs of transmission capacity a zero weight and to recoup total revenue requirements largely on a volumetric basis. (Exh. D, p. 14.)

Dr. Wilson also argues for volumetric costing on grounds of conservation:

By allocating costs to consumption rather than maximum demand, volumetric pricing tends to promote maximum conservation of the limited natural resource (natural gas) and treats existing pipeline capacity as a sunk cost component which has less long-run need for economic rationing. Alternative approaches, on the other hand, because they allocate certain costs on a capacity basis rather than on the basis of gas consumed, actually tend to conserve the utilization of transmission and delivery capacity and to promote gas consumption. Obviously, to the extent that gas supply rather than delivery capacity is the more seriously limiting factor in the natural gas industry, rates based on demand rather than commodity cost allocation methods would create precisely the wrong economic incentives. (Exh. D, pp. 14 & 15.)

48. The Applicant's Seaboard costing formula is not accepted. In light of the Applicant's own projection of future sales volumes, the premise that the GFG system is constrained by system capacity rather than commodity supply is rejected as faulty. The trend in the incremental price of gas supply in Montana is certainly indicative of a scarce commodity. The Commission finds that the system wide volumetric allocation of cost responsibility is preferred to the Seaboard method proposed by the Applicant.

49. Substantial testimony on volumetric costing and marginal pricing resulted from this Docket as well as Docket No. 6618 -- the Montana Power Company (MPC) rate case. Testifying in support of these principles were, in addition to Dr. Wilson, Human Resource Council District XI's witness Dr. Thomas Power and MPC's witness Dr. Charles Phillips. The volumetric cost allocation method adopted here is consistent with that resulting from Docket No. 6818:

The Commission finds that the fundamental economic arguments in support of the volumetric costing and pricing proposals of Dr. Wilson and Dr. Power, bolstered by the testimony of Dr. Phillips, are persuasive and constitute the best evidence of record on these issues. The Commission finds that "it is time to totally restructure the rates to reflect not the past but current and future conditions" -- to abandon the "piecemeal adjustment" to an inappropriate cost of service methodology. (Order No. 4521b, Finding No. 31.)

50. All GFG customers are firm users, therefore, by accepting the system wide volumetric costing method, system costs are allocated amongst all customers in the system on a straight dollar per Mcf basis.

### Rate Design

51. The Applicant's proposed rate design includes a service charge, declining blocks, and a lifeline within only the residential class of customers. The Montana Consumer Counsel witness Dr. Wilson proposed a flat rate structure. Dr. Wilson did not address the service charge or lifeline issue.

52. In support of declining blocks, Mr. Rudden testified that the blocks proposed were cost justified and/or necessary to limit the price impact on large customers. In regard to the residential customer class, Mr. Rudden stated that:

Since the vast bulk of residential use falls within the first 100 Mcf per month, my original intention was to... eliminate all blocks, thereby flattening the rate. However, analyses indicated that such flattening would substantially increase the bills of some large customers. I therefore developed the residential rate with two blocks, one from 0 to 100 Mcf and the other above 100 Mcf to limit the impact on these large customers.... (Exh. 46, p. 7.)

In regard to the commercial customer class, Mr. Rudden argued that:

...the commercial class of customers contains a wide diversity of customers whose size and use characteristics vary considerably, including larger than average customers whose average cost of service tends to be lower than smaller customers. Some recognition of this situation had to be retained in the rate schedule. I chose, therefore, to establish the block break point at 100 Mcf, which is slightly above the average use for this class.

Q. Even if there were no cost justification for this blocking arrangement, would you still propose a two-block rate?

A. Yes. The reasons for retaining a two block structure, as opposed to a flat structure, are that it avoids overly abrupt increases to larger than average customers on this schedule and it reduces revenue and earnings instability, relative to a flat rate structure. (Exh. 46, p. 8.)

Mr. Rudden also proposed differential pricing for the Malmstrom Air Force Base and Phillips Petroleum. The proposed rates for these two large customers is based on specific characteristics of their service.

53. Dr. Wilson rationalizes his proposed fiat rate design on the basis of high incremental commodity costs and "long term absolute limitation of the basic gas resource." (Exh. D, p. 13.)

54. Both Mr. Rudden and Mr. Geske argue that the service charge is necessary to maintain sufficient warm weather cash flow.

55. The Applicant's proposed lifeline, within only the residential class, was rationalized by Mr. Rudden:

Q. Why are you proposing to apply lifeline rates to only the residential class.

A. Primarily because the small to medium sized residential customers are the intended beneficiaries of lifeline. Secondly, because unlike the MPC situation where all firm customers are served under one rate schedule, we are proposing to maintain separate cost based classes of services for residential and non-residential customers, and consequently do not need to offer identical rate treatment to all customers. (Exh. 52, p. 8.)

56. The Applicant's proposed declining blocks, service charge, and residential lifeline are not accepted. The Commission finds that declining block rates in times of exorbitant marginal commodity costs (\$4.47 per Mcf) is in direct conflict with efficient energy resource management. To provide an incentive to increase consumption into lower priced tail blocks is in direct contrast with the economic principles of marginal cost pricing established in Order No. 4521b:

From the record in this proceeding the Commission finds that the collective testimony of witnesses demonstrates that the objectives of conservation, efficiency and equity are promoted in the long run by rates based upon marginal costs. (Order No. 4521b, Finding No. 45.)

The premise that the large customers should be awarded concessions is found to be at fault. To encourage consumption at artificially low prices by those with the largest price elasticity is not only antonymous to conservation but would result in a grossly inefficient allocation of the scarce resource. Furthermore, to single out large customers raises serious equity questions. The premise is partially accepted in that the volumetrically based rates are only a progression towards full marginal cost pricing.

57. Realizing the economic rent resulting from marginal cost pricing, the Commission finds the elimination of the service charge and minimum bill for all classes consistent with inverse elasticity principles. The cash flow problems conveyed in support of the service charge will be mitigated by the Applicant's new "budget billing" capabilities as well as the lifeline.

58. The Applicant's proposed lifeline is not accepted. Upon inspection the Commission finds that the GFG firm customer class, with the exception of the residential half of the Air Force Base, is nearly identical to that of the MPC system:

	% of Firm	
	GFG	MPC
Firm Customers	100	100
Residential	47.6	55.1
Commercial	35.1	33.7
Public Authority	12.7	6.3
Industrial	4.5	4.7

59. The Commission therefore finds that the Applicant's proposed lifeline (25% discount for the first 15 Mcf's during the 4 months of December through March) should be system wide. This finding is consistent with that resulting from Docket No. 6618:

The seasonally differentiated rate or "lifeline" should be confined to the newly constituted F I RM class. Equity requires that the lifeline discount should be available uniformly to all customers of this class rather than to a subclass of "residential" users. (Order No. 4521 b, Finding No. 48a.)

60. Given the annual revenue requirement (plus additional gas costs since the test year) and normalized sales volumes determined in Part C, the GFG natural gas rates (at 13.28 PSIA) resulting from Docket No. 6701 are provided below:

Annual Revenue Requirement = ARR =	\$21,061,451
Lifeline Sales Volumes = LSV=	1,125,140 MCF
Nonlifeline Sales Volumes = NSLV =	4,755,225 MCF
Lifeline Rate = LR =	2.8212 \$/MCF
Nonlifeline Rate = NLR =	3.7616 \$/MCF

#### CONCLUSIONS OF LAW

1. The rate base reflects original cost depreciated values. These values comply with the requirements of 69-3-109, MCA, that the value placed upon a utility's property for ratemaking purposes "...may not exceed the original cost of the property. "

2. An average rate base is an appropriate means of measuring the value of Applicant's properties at risk during the test period. In addition, the use of average rate base values better match test year revenues and expenses to the properties which produced them than do end of test year values. This Commission is of the opinion that achieving this matching remains a paramount goal in informed rate making. Accordingly, adoption of the average rate bases with corresponding revenue and expense levels is appropriate.

3. The rate of return allowed in this order meets the constitutional requirement that a public utility's return must be "commensurate with returns on investments in other enterprises having corresponding risks and sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital." Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 591, 603 (1944).

4. The rate structure authorized by the Commission, based upon analysis of the entire record, is just, reasonable, and not unjustly discriminatory.

### ORDER

The Montana Public Service Commission Orders that:

1. Rate schedules shall be filed in accordance with the Commission's findings and determinations in the "Finding of Fact" sections of this order.

The schedules shall be effective for service rendered on and after the date of this order. Rates in effect before the date of the order shall be prorated. Rates per Mcf shall be prorated on the basis of degree days. Monthly service charges shall be prorated on the basis of degree days.

2. All motions and objections not ruled upon are denied.

Done in Open Session at a meeting of the Montana Public Service Commission this 5th day of May, 1980 by a vote of 5 - 0

BY ORDER OF THE MONTANA PUBLIC SERVICE COMMISSION.

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GORDON E . BOLLINGER, Chairman

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CLYDE JARVIS, Commissioner

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THOMAS J. SCHNEIDER, Commissioner

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JAMES R. SHEA, Commissioner

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GEORGE TURMAN, Commissioner

ATTEST:

Madeline L. Cottrill  
Secretary

(SEAL)

NOTE: You may be entitled to judicial review of the final decision in this matter. If no Motion for Reconsideration is filed, judicial review may be obtained by filing a petition for review within thirty (30) days from the service of this order. If a Motion for Reconsideration is filed, a Commission order is final for purpose of appeal upon the entry of a ruling on that motion, or upon the passage of ten (10) days following the filing of that motion. cf. the Montana Administrative Procedure Act, esp. Sec. 2-4-702, MCA; and Commission Rules of Practice and Procedure, esp. 38-2.2(64)-P2750, ARM.