

**Pittsfield Aqueduct Company, Inc.
North Country Division**

**Report on
Cost of Service Allocations
and Rate Design**

AUS Consultants

By

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May 2008

Pittsfield Aqueduct Company, Inc.
North Country Division
Report on
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Introduction

This report sets forth the procedures, findings, and results of a cost of service allocation and rate design study for the North Country Division of Pittsfield Aqueduct Company, Inc. (NC or the Company). As of the end of calendar year 2007, the Company provided water service to approximately 1,100 customers via three small water systems located in three communities. NC serves customers through the Locke Lake water system in Barnstead, the Birch Hill water system in Conway, and the Sunrise Estates water system in Middleton. These water systems are located in the central and northern parts of New Hampshire.

This cost of service allocation and rate design study is based on the total pro forma revenue requirement for the twelve months ending December 31, 2007 as will be requested by the Company in its planned rate filing before the New Hampshire Public Utilities Commission.

Revenue Requirement

Every public utility must receive total revenues sufficient to ensure proper operation and maintenance, development and perpetuation of its system and facilities, and preservation of its financial integrity. Without adequate revenues, the public utility would not be able to provide safe and adequate service to its customers. The total revenue requirement of a public utility is synonymous with its total cost of service and

represents the amount of monies which must be recovered from its customer base through a system of periodic rates and charges for utility service.

Cost of service allocation and rate design studies for investor-owned water utilities reporting to a regulatory authority are often conducted in conjunction with the processing of a rate relief application at which time it is usually necessary to develop a pro forma revenue requirement. Such is the case in the present study which is based on the pro forma operations for the test year ended December 31, 2007, as developed by the management of the Company.

For the purpose of this study, the total pro forma revenue requirement, as developed by the Company for the test year ended December 31, 2007, may be summarized as follows:

<u>Item</u>	<u>Amount</u>
Operation and Maintenance Expense	\$584,382
Depreciation and Amortization	82,183
Taxes Other Than Income Tax	58,527
Net Operating Income	233,990
Income Taxes	<u>119,970</u>
Total Revenue Requirement	<u>\$1,079,052</u>

As subsequently discussed herein, this study results in the allocation of the \$1,079,052 revenue requirement to functional costs and rate elements. It is noted that some \$5,805 of the revenue requirement is projected to be obtained from other revenue or miscellaneous service revenue leaving a net revenue requirement of \$1,073,247 to be recovered from a schedule of rates and charges for water service. This is the revenue amount the Company is requesting in temporary rates to relieve its net operating losses.

Plant Investment

The Company maintains its plant investment accounts in accordance with the fixed capital reporting requirements of the New Hampshire Public Utilities Commission. Under this system, the original cost and the depreciation expense for utility plant in service as of December 31, 2007 may be summarized as follows:

<u>Plant in Service</u>	<u>Original Cost</u>	<u>Depreciation Expense</u>
Source of Supply and Pumping	\$1,459,199	\$27,836
Water Treatment	244,212	13,122
Transmission and Distribution	1,383,949	29,728
General	50,082	2,984
Intangible	<u>223,071</u>	<u>9,087</u>
Total Utility Plant in Service	<u>\$3,360,513</u>	<u>\$82,757</u>

As subsequently discussed herein, the above original cost elements and depreciation expense elements are allocated to a group of functional costs. The results of these allocations then become an input into the allocation of the pro forma revenue requirement.

Cost of Service Allocation

The pro forma revenue requirement (or equivalently, the total cost of service) was allocated to two broad functional cost categories, namely Volume Cost and Customer Cost. These allocations are set forth in detail on the accompanying Schedules N1 through N6. (It is noted that there is no fire protection service in the North Country Division. In fact, there is only one hydrant in the NC system and it is used solely for main flushing purposes. While Schedules N1 through N6 include a column for Direct Fire Costs, the entries in these columns are all zeroes.)

The Volume Cost Component, in the study developed herein, encompasses all the volume related elements of the cost of service. That is, the Volume Cost Component includes both costs associated with serving customers under average load conditions and costs associated with meeting rate-of-use requirements in excess of average. Stated in another manner, volume costs comprise all costs other than customer costs.

The Customer Cost Component includes those costs associated with connecting and serving customers irrespective of the volume of water used or the demand requirements imposed on the system. Customer costs generally comprise capital and operating costs related to services, meters, and customer installations and meter reading, billing, and collecting expenses. In the present study, a portion of the costs and expenses related to transmission and distribution mains and distribution reservoirs were also allocated to the Customer Cost Component.

The accompanying Schedule N1 sets forth the allocation of utility plant in service at December 31, 2007. The results of the utility plant allocation are used to allocate property insurance and property taxes.

The results of the utility plant allocation are also an input into the rate base allocation. The accompanying Schedule N2 sets forth the allocation of the rate base at December 31, 2007. The results of the rate base allocation are used to allocate capital related elements of the revenue requirement such as net operating income and income taxes.

The accompanying Schedule N3 sets forth the allocation of the depreciation expense at December 31, 2007. The results of this allocation are used to allocate the pro forma depreciation and amortization expense.

The accompanying Schedule N4 sets forth in detail the allocation of the pro forma operation and maintenance expense. The results of this allocation become part of the revenue requirement allocation.

The accompanying Schedule N5 sets forth the allocation of the pro forma operating expense and other revenue requirements. Other revenue has been deducted from the revenue requirement allocations resulting in a net revenue requirement allocation. As shown on Schedule N5, the Volume Cost component accounts for 62.82% of the net revenue requirement while the Customer Cost Component accounts for 37.18%.

The right-most columns of Schedules N1 through N5 are headed "Allocation Code" and set forth the codes for the specific allocation factors used in this study. The allocation codes are simply reference numbers which designate groups of percentages which are used to allocate the total amount of any given cost element to the several cost functions. The accompanying Schedule N6 lists the allocation codes and percentage factors and contains a brief written description of the allocation bases.

Allocation of Mains and Distribution Reservoirs

As noted previously herein, portions of the costs and expenses related to transmission and distribution mains and distribution reservoirs were allocated to the Customer Cost Component in addition to being allocated to the Volume Cost Component. As shown by Allocation Code 04 on Schedule N6, 25% of the main costs and expenses were allocated to volume with 75% allocated to customer. These percentages were determined through an analysis of the inch-feet of mains in service at December 31, 2007.

The accompanying Schedule N7 sets forth the lengths of transmission and distribution mains in service as of December 31, 2007. As shown on Schedule N7, there were a total of 134,105 feet of transmission and distribution mains in service as of December 31, 2007. Schedule N7 illustrates both the reduction of all larger size mains to a 2" diameter and the calculation of inch-feet of mains. An inch-foot is simply the length of main in feet multiplied by the size of the diameter in inches. As shown on Schedule N7, there was an actual total of 359,999 inch-feet as of December 31, 2007. Under the reduction in size, there are only 264,943 inch-feet or about 75% of the actual number. This 75% is the customer cost portion of the mains. In essence, reducing the mains to 2" in diameter is similar to developing a minimum size system. This is also similar to the minimum size distribution system concept used in electric cost of service analyses.

Revenues From Present Rates

Before designing a schedule of developed rates based on the allocations set forth herein, revenues under present rates were calculated. This calculation was based on the reported numbers of meters and unmetered connections in service at December 31, 2007 together with the reported billable volumetric water usage during calendar year 2007.

The accompanying Schedule N8 sets forth the calculation of revenues under present rates. As shown on Schedule N8, 54.70% of present rate revenue is obtained from general water service volumetric charges, 40.88% is obtained from general water service customer (or minimum) charges, and 4.42% is obtained from unmetered service.

The Existing NC Rate Schedule

The present rate schedule used by the Company for general water service comprises a monthly minimum customer charge which varies by meter size together with

a uniform volumetric usage charge applied to all water used. In addition, there are flat rate unmetered charges which are billed to 10 customers in Middleton and to 39 customers in North Conway.

The rates and charges presently set forth in the NC tariff were used in the calculation of present rate revenues on Schedule N8 and may be found thereon.

Rate Design

The design of rates, based on the allocations set forth and discussed herein, is presented on the accompanying Schedule N9.

Page 1 of Schedule N9 sets forth the rate design for the customer or minimum charges. As shown thereon, an increase of about 311% is indicated. The monthly rates for all meter sizes have been increased by this percentage. In determining the percentage increase, unmetered revenue was considered. The development of the unmetered rates will recognize this consideration.

It is noted that, as shown on Page 1 of Schedule N10, the volume portion of administrative and general expenses and the volume portion of the management fee were added to the functional customer costs before the customer charges were developed.

Rather than relying solely and strictly upon the allocated functional customer cost component, as determined in the cost of service allocations, as the basis for the development of the proposed customer (minimum) charges, it is appropriate to recover more of the Company's fixed costs by means of the customer charge. The inclusion of other fixed costs in addition to the functional customer costs will tend to enhance the Company's revenue and financial stability and would help stabilize cash flow during lower water usage periods. This is important for a small water utility with high fixed

costs and a heavily seasonal pattern of water usage. (Locke Lake is a seasonal summer resort community and Birch Hill is a seasonal winter ski resort community.)

The inclusion of other costs in addition to the functional customer costs in customer (minimum or service) charges is recognized in the water ratemaking literature. AWWA Water Rates Manual M1 states that “The service charge is designed to recover customer-related costs and possibly some capacity-related costs associated with readiness to serve...” (Fourth Edition, page 34). Additionally, AWWA Water Rates Manual M1 also notes that “a portion of distribution-main costs as well as a portion of demand-related costs are sometimes included in the determination of service charges.” (Fourth Edition, page 39).

In addition to the above examples from the AWWA Water Rates Manual, further support for the inclusion of other items in the customer charge may be obtained from Publication NRRI 93-13 of the National Regulatory Research Institute. That publication, entitled “Meeting Water Utility Revenue Requirements: Financing and Ratemaking Alternatives”, states on page 69 that “common (overhead) costs include those costs (for example, administrative and general) that are generally independent of the number of customers, maximum demand, average demand, and volume of usage. Common costs can be recovered via a periodic service charge.”

The inclusion of costs other than functional customer costs in the development of the customer charges recognizes, in part, the year-round availability of water service coupled with the seasonal pattern of water usage. It is estimated that the required volumetric rate would be greater than \$12 per ccf if the customer charge development did

not include these other costs. Such a high volumetric rate could be unduly burdensome on full-year residents.

Page 2 of Schedule N9 sets forth the design of the volumetric usage rate. The volumetric rate is the “balance wheel” in the rate design. It provides the remaining amount of the pro forma net revenue requirement after deducting the developed revenues from customer charges and a portion of the unmetered revenue. Additionally, as noted on Page 2, an annual use of 50 ccf has been estimated for each unmetered customer; this usage will be recognized in the development of the unmetered rate. The developed volumetric rate is about 180% greater than the existing volumetric rate.

Finally, Page 3 of Schedule N9 sets forth the design of the general water service unmetered rate. This rate is based on the developed 5/8” meter charge and an estimated usage of 50 ccf per customer per year. The 50 ccf estimated annual usage is based on the average residential usage of metered customers located in the North Country Division.

Revenues from Developed Rates

The accompanying Schedule N10 sets forth the calculation of revenues under the developed rates. As shown on Schedule N10, 45.61% of developed rate revenue is obtained from general water service volumetric charges, 49.97% is obtained from general water service customer (or minimum) charges, and 4.42% is obtained from charges for unmetered service. The developed rates, when applied to the billing parameters, generate \$1,073,353 in revenue. This revenue amount is about \$106 greater than the net revenue requirement of \$1,073,247. This difference is only 0.010% and is considered negligible.

Closure

The results of the studies set forth and discussed herein can provide guidelines to be utilized in restructuring the Company's rates and charges for service. However, it must be remembered that cost of service allocations are the products of analyses based in part on judgment and experience and as such, while their results are a substantial aid in the design of rates, they are not meant to be literal, exact "gospel truth" type answers. Seldom, if ever, are rates exactly in line with the costs of service at any given time nor is it usually possible to design rate structures which are in complete exact agreement with all aspects of a cost of service allocation study. Generally, minor differences will exist just as a matter of normal circumstances. In addition, attempts to exactly meet the cost of service indications in one rate adjustment can impose extremely large and undue burdens on individual customers or customer groups. Most rate consultants favor a process of gradually bringing deficiency in revenue generation in line with cost of service indications so as to avoid or ameliorate undue or abrupt changes in rate structure. Actual rate and tariff design, in addition to relying on the results of cost of service allocation analyses, should also include consideration of policy matters, impact and extent of rate changes, past historical practice, future planning, special customer characteristics and regulatory and contract requirements.

**Pittsfield Aqueduct Company, Inc.
North Country Division**

Schedules N1 through N10

to Accompany

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May 2008

Pittsfield Aqueduct Company, Inc.
North Country Division
Allocation of Utility Plant in Service at December 31, 2007

<u>Acc't Description</u>	<u>Total Cost</u>	<u>Volume</u>	<u>Customer</u>	<u>Direct Fire</u>	<u>Allocation Code</u>
<u>Source of Supply and Pumping Plant</u>					
303 Land and Land Rights	139,785	139,785	0	0	01
304 Structures and Improvements	909,881	909,881	0	0	01
305 Collecting and Impounding Reservoirs	0	0	0	0	01
306 Lake, River and Other Intakes	0	0	0	0	01
307 Wells and Springs	91,568	91,568	0	0	01
309 Supply Mains	12,177	12,177	0	0	01
310 Power Generation Equipment	32,516	32,516	0	0	01
311 Pumping Equipment	273,272	273,272	0	0	01
Total Supply and Pumping Plant	1,459,199	1,459,199	0	0	
<u>Water Treatment Plant</u>					
304 Structures and Improvements	0	0	0	0	01
320 Water Treatment Equipment	244,212	244,212	0	0	01
Total Water Treatment Plant	244,212	244,212	0	0	
<u>Transmission and Distribution Plant</u>					
330 Distribution Reservoirs	521,032	130,258	390,774	0	04
331 Transmission and Distribution Mains	582,582	145,645	436,937	0	04
333 Services	107,761	0	107,761	0	02
334 Meters and Meter Installations	165,212	0	165,212	0	02
335 Hydrants	0	0	0	0	03
Subtotal Transmission and Distribution Plant	1,376,587	275,903	1,100,684	0	
Percents Code 05	100.00%	20.04%	79.96%	0.00%	
339 Other Plant and Miscellaneous Equipment	7,362	1,475	5,887	0	05
Total Transmission and Distribution Plant	1,383,949	277,378	1,106,571	0	
Subtotal Above Plant	3,087,360	1,980,789	1,106,571	0	
Percents Code 06	100.00%	64.16%	35.84%	0.00%	
<u>General Plant</u>					
340 Office Furniture and Equipment	2,689	1,725	964	0	06
343 Tools Shop and Garage Equipment	30,622	19,647	10,975	0	06
344 Laboratory Equipment	0	0	0	0	06
346 Communication Equipment	16,378	10,508	5,870	0	06
347 Computer Equipment	393	252	141	0	06
348 Miscellaneous Equipment	0	0	0	0	06
Total General Plant	50,082	32,132	17,950	0	
<u>Intangible Plant</u>					
301 Organization	223,071	143,122	79,949	0	06
302 Franchise	0	0	0	0	06
Total Intangible Plant	223,071	143,122	79,949	0	
Total Utility Plant in Service	3,360,513	2,156,043	1,204,470	0	
Percents Code 06	100.00%	64.16%	35.84%	0.00%	

Pittsfield Aqueduct Company, Inc.
North Country Division
Allocation of Rate Base at December 31, 2007

<u>Acc't Description</u>	<u>Total Cost</u>	<u>Volume</u>	<u>Customer</u>	<u>Direct Fire</u>	<u>Allocation Code</u>
Total Utility Plant in Service	3,360,513	2,156,043	1,204,470	0	
<u>Accumulated Depreciation</u>					
Organization	(15,937)	(10,225)	(5,712)	0	06
Structures	(9,724)	(9,724)	0	0	01
Pumping and Distribution Equipment	(16,316)	(16,316)	0	0	01
Transmission and Distribution Mains	(19,081)	(4,770)	(14,311)	0	04
Services	(3,297)	0	(3,297)	0	02
Meters	(9,327)	0	(9,327)	0	02
Hydrants	0	0	0	0	03
Other Equipment	(5,460)	(3,503)	(1,957)	0	06
Accumulated Depreciation - Loss	10,461	6,712	3,749	0	06
Accumulated Depreciation - Cost of Removal	76,739	49,236	27,503	0	06
Total Accumulated Depreciation	8,058	11,410	(3,352)	0	
<u>Contributions In Aid of Construction</u>					
CIAC - Mains	(14,096)	(3,524)	(10,572)	0	04
CIAC - Water Filtration	0	0	0	0	01
Amortize CIAC - Mains	82	21	61	0	04
Amortize CIAC - Water Filtration	0	0	0	0	01
Total CIAC	(14,014)	(3,503)	(10,511)	0	
Subtotal Above Rate Base Items	3,354,557	2,163,950	1,190,607	0	
<u>Additions to Rate Base</u>					
Working Capital	43,575	26,481	17,094	0	09
Materials & Supplies	0	0	0	0	06
Prepaid Insurance	0	0	0	0	06
Prepaid Property Taxes	2,709	1,738	971	0	06
Deferred Charges - Main Breaks	0	0	0	0	04
Deferred Charges - Other Items	2,982	1,913	1,069	0	06
Total Additions	49,266	30,132	19,134	0	
<u>Deductions from Rate Base</u>					
Customer Advances	0	0	0	0	04
Customer Deposits	0	0	0	0	02
Deferred Income Tax	0	0	0	0	06
Total Deductions	0	0	0	0	
Total Rate Base	3,403,823	2,194,082	1,209,741	0	
Percents Code 13	100.00%	64.46%	35.54%	0.00%	

Pittsfield Aqueduct Company, Inc.
North Country Division
Allocation of Depreciation Expense - Pro Forma at December 31, 2007

<u>Acc't Description</u>	<u>Total Cost</u>	<u>Volume</u>	<u>Customer</u>	<u>Direct Fire</u>	<u>Allocation Code</u>
<u>Source of Supply and Pumping Plant</u>					
303 Land and Land Rights	0	0	0	0	01
304 Structures and Improvements	6,768	6,768	0	0	01
305 Collecting and Impounding Reservoirs	0	0	0	0	01
306 Lake, River and Other Intakes	0	0	0	0	01
307 Wells and Springs	2,035	2,035	0	0	01
309 Supply Mains	126	126	0	0	01
310 Power Generation Equipment	1,990	1,990	0	0	01
311 Pumping Equipment	16,917	16,917	0	0	01
Total Supply and Pumping Depreciation Exp.	27,836	27,836	0	0	
<u>Water Treatment Plant</u>					
304 Structures and Improvements	5,363	5,363	0	0	01
320 Water Treatment Equipment	7,759	7,759	0	0	01
Total Water Treatment Depreciation Exp.	13,122	13,122	0	0	
<u>Transmission and Distribution Plant</u>					
330 Distribution Reservoirs	12,675	3,169	9,506	0	04
331 Transmission and Distribution Mains	7,035	1,759	5,276	0	04
333 Services	1,722	0	1,722	0	02
334 Meters and Meter Installations	7,905	0	7,905	0	02
335 Hydrants	0	0	0	0	03
Subtotal Trans. and Dist. Depreciation Exp.	29,337	4,928	24,409	0	
339 Other Plant and Miscellaneous Equipment	391	78	313	0	05
Total Trans. and Dist. Depreciation Exp.	29,728	5,006	24,722	0	
Subtotal Above Depreciation Exp.	70,686	45,964	24,722	0	
<u>General Plant</u>					
340 Office Furniture and Equipment	134	86	48	0	06
343 Tools Shop and Garage Equipment	2,501	1,605	896	0	06
344 Laboratory Equipment	0	0	0	0	06
346 Communication Equipment	302	194	108	0	06
347 Computer Equipment	47	30	17	0	06
348 Miscellaneous Equipment	0	0	0	0	06
Total General Depreciation Exp.	2,984	1,915	1,069	0	
<u>Intangible Plant</u>					
301 Organization	9,087	5,830	3,257	0	06
302 Franchise	0	0	0	0	06
Total Intangible Depreciation Exp.	9,087	5,830	3,257	0	
Total Utility Plant Depreciation Exp.	82,757	53,709	29,048	0	
Percents Code 07	100.00%	64.90%	35.10%	0.00%	
Add New Depreciation Rate Adjustment	(2,700)	(1,752)	(948)	0	07
Total Utility Plant Depreciation Exp. - Pro Forma	80,057	51,957	28,100	0	

Pittsfield Aqueduct Company, Inc.
North Country Division
Allocation of Operation and Maintenance Expense - Pro Forma at December 31, 2007

<u>Acc't Description</u>	<u>Total Cost</u>	<u>Volume</u>	<u>Customer</u>	<u>Direct Fire</u>	<u>Allocation Code</u>
<u>Production Expenses</u>					
Total Supply, Pumping, and Water Treatment	187,031	187,031	0	0	01
<u>Transmission and Distribution Expenses</u>					
662 Trans & Dist Lines Expense	193	48	145	0	04
663 Meter Expenses	7,150	0	7,150	0	02
664 Customer Installation Expenses	2,374	0	2,374	0	02
665 Miscellaneous Expenses	619	0	619	0	02
660 Operation Supervision and Engineering	18,932	3,794	15,138	0	05
673 Maintenance of Trans & Dist Mains	61,742	15,436	46,306	0	04
675 Maintenance of Services	34,508	0	34,508	0	02
676 Maintenance of Meters	3,034	0	3,034	0	02
677 Maintenance of Hydrants	1,300	325	975	0	04
678 Maintenance of Miscellaneous Equipment	2,749	551	2,198	0	05
Total Transmission and Distribution O&M	132,601	20,154	112,447	0	
Percents Code 08	100.00%	15.20%	84.80%	0.00%	
<u>Customer Accounts Expenses</u>					
Total Customer Accounts Expenses	21,306	0	21,306	0	02
Subtotal Above O&M Expenses	340,938	207,185	133,753	0	
Percents Code 09	100.00%	60.77%	39.23%	0.00%	
<u>Administrative and General Expenses</u>					
924 Property Insurance	4,421	2,837	1,584	0	06
All Other A&G Expense	30,076	18,277	11,799	0	09
Total Administrative and General Expenses	34,497	21,114	13,383	0	
Subtotal Above O&M Expenses	375,435	228,299	147,136	0	
Percents Code 10	100.00%	60.81%	39.19%	0.00%	
<u>Inter Div Management Fee</u>					
Total Management Fee	208,947	130,550	78,397	0	11
Total Operation and Maintenance Expenses	584,382	358,849	225,533	0	
Percents	100.00%	61.41%	38.59%	0.00%	

Pittsfield Aqueduct Company, Inc.
North Country Division
Allocation of Pro Forma Operating Expense and Other Revenue Requirements

<u>Acc't Description</u>	<u>Total Cost</u>	<u>Volume</u>	<u>Customer</u>	<u>Direct Fire</u>	<u>Allocation Code</u>
<u>Operation and Maintenance Expense</u>					
Total Operating Expense	584,382	358,849	225,533	0	
<u>Depreciation and Amortization</u>					
Total Depreciation and Amortization	82,183	53,337	28,846	0	07
<u>Taxes Other Than Income Taxes</u>					
Total Other Taxes (Property Taxes)	58,527	37,551	20,976	0	06
<u>Net Operating Income</u>					
Pro Forma Net Operating Income	233,990	150,830	83,160	0	13
<u>Income Taxes</u>					
Pro Forma Income Taxes	119,970	77,333	42,637	0	13
Total Pro Forma Revenue Requirement	1,079,052	677,900	401,152	0	
Percents Code 12	100.00%	62.82%	37.18%	0.00%	
Less Other Revenue	(5,805)	(3,647)	(2,158)	0	12
Net Revenue Requirement	1,073,247	674,253	398,994	0	
Percents Code 12	100.00%	62.82%	37.18%	0.00%	

Pittsfield Aqueduct Company, Inc.
North Country Division
Summary of Allocation Factors

<u>Allocation Code</u>	<u>Description</u>	<u>% Volume</u>	<u>% Customer</u>	<u>% Direct Fire</u>	<u>Check Total %</u>
01	Volume Cost	100.00	0.00	0.00	100.00
02	Customer Cost	0.00	100.00	0.00	100.00
03	Direct Fire Cost	0.00	0.00	100.00	100.00
04	Trans. And Dist. Mains	25.00	75.00	0.00	100.00
05	Trans. And Dist. Plant	20.04	79.96	0.00	100.00
06	Total Plant	64.16	35.84	0.00	100.00
07	Depreciation Expense	64.90	35.10	0.00	100.00
08	Trans. And Dist. O&M Expense	15.20	84.80	0.00	100.00
09	O&M Before A&G and Management Fee	60.77	39.23	0.00	100.00
10	O&M Before Management Fee	60.81	39.19	0.00	100.00
11	Management Fee	62.48	37.52	0.00	100.00
12	Revenue Requirement	62.82	37.18	0.00	100.00
13	Rate Base	64.46	35.54	0.00	100.00

Explanation of Factors Used in the Allocations

- 01 This Code allocates items 100 percent to Volume Cost.
- 02 This Code allocates items 100 percent to Customer Cost.
- 03 This Code allocates items 100 percent to Direct Fire Cost.
- 04 This Code allocates items to the cost components based on analyses of transmission and distribution inch-feet.
- 05 This Code allocates items to the cost components based on the composite allocation of transmission and distribution plant.
- 06 This Code allocates items to the cost components based on the composite allocation of total utility plant.
- 07 This Code allocates items to the cost components based on the composite allocation of depreciation expense.
- 08 This Code allocates items to the cost components based on the composite allocation of transmission and distribution operation and maintenance expense.
- 09 This Code is based on the composite allocation of O&M expense without A&G expense and the management fee.
- 10 This Code is based on the composite allocation of O&M expense without the management fee.
- 11 This Code is based on equal weightings of Codes 06 and 11. It is used to allocate the management fee.
- 12 This Code allocates items to the cost components based on the composite allocation of the revenue requirement.
- 13 This Code allocates items to the cost components based on the composite allocation of the rate base.

Pittsfield Aqueduct Company, Inc.
North Country Division
Transmission and Distribution Inch-Feet
Inch-Feet of Mains in Service at December 31, 2007
Reduce Larger Mains to 2" Size

<u>Actual Mains in Service</u>			<u>Reduce Larger Mains to 2" Size</u>		
<u>Size</u>	<u>Length</u>	<u>In-Ft</u>	<u>Size</u>	<u>Length</u>	<u>In-Ft</u>
1 1/4'	1,798	2,247.5	1 1/4'	1,798	2,247.5
1 1/2"	3,837	5,755.5	1 1/2"	3,837	5,755.5
2"	79,857	159,714.0	2"	79,857	159,714.0
3"	4,220	12,660.0	2"	4,220	8,440.0
4"	43,557	174,228.0	2"	43,557	87,114.0
6"	647	3,882.0	2"	647	1,294.0
8"	189	1,512.0	2"	189	378.0
10"	0	0.0	2"	0	0.0
12"	0	0.0	2"	0	0.0
Total	134,105	359,999.0	Total	134,105	264,943.0

Inch-Feet Based on Actual Size of Mains	359,999.0
Inch-Feet Based on Reduced Size of Mains	264,943.0
Difference	95,056.0
	26.40%

Pittsfield Aqueduct Company, Inc.
North Country Division
Calculation of Revenues Under Present Rates

General Water Service

Residential:

<u>Meter Size</u>	<u>Number of Meters</u>	<u>Number of Bills</u>	<u>Present Rate</u>	<u>Present Revenue</u>	
5/8"	1,060	12,720	\$ 10.27	\$ 130,634.40	
Total	1,060	12,720		\$ 130,634.40	40.88%
<u>Volume:</u>	<u>CCFT</u>				
	52,978		\$ 3.30	\$ 174,827.40	54.70%

Unmetered

	<u>Number of Services</u>	<u>Number of Bills</u>	<u>Present Rate</u>	<u>Present Revenue</u>	
	10	120	\$ 33.09	\$ 3,970.80	
	39	468	21.68	10,146.24	
Total	49	588		\$ 14,117.04	4.42%
Grand Total GWS Revenue				\$ 319,578.84	100.00%
Grand North Country Revenue				\$ 319,578.84	

Pittsfield Aqueduct Company, Inc.
North Country Division
Rate Design

GWS Customer Charges (Minimum Charges)

Allocated Costs	\$	398,994
Add Volume Part of Admin & Gen'l	\$	21,114
Add Volume Part of Management Fee	\$	130,550
Total to be Recovered from Customer Chgs	\$	550,658
Present Revenue - Cust Chgs	\$	130,634.40
Present Revenue - Unmetered Svc	\$	14,117.04
Present Revenue - Total Above	\$	144,751.44
Increase Required	\$	405,906.56

310.72 %

<u>Rate Element</u>	<u>Present Monthly Rate</u>	<u>Developed Monthly Rate</u>	<u>% Increase</u>
5/8"	\$ 10.27	\$ 42.17	310.61 %
3/4"	14.61	60.00	310.68 %
1"	22.06	90.59	310.65 %
1 1/2"	39.81	163.50	310.70 %
2"	61.58	252.91	310.70 %
3"	114.41	469.89	310.71 %
4"	187.49	770.05	310.72 %
6"	373.98	1,536.00	310.72 %
8"	622.01	2,554.71	310.72 %

Pittsfield Aqueduct Company, Inc.
North Country Division
Rate Design

GWS Volumetric Rate

Pro Forma Net Revenue Requirement	\$	1,073,247
Revenue from Designed Rates		
Customer Charges (Minimum Charges)		536,402
Unmetered - Partial		24,796
Remaining from Volumetric Rate	\$	512,049
Annual Volume in 100 cu. ft.		55,428
Designed Rate per 100 cu. ft.	\$	9.24

<u>Rate Element</u>		<u>Present Rate</u>	<u>Developed Rate</u>	<u>% Increase</u>
Per 100 cu. ft.	\$	3.30	\$ 9.24	180.00 %

Note: For rate design purposes, an estimated annual use of 50 CCF has been used for each of the 49 existing unmetered customers.

Pennichuck East Utility, Inc.
North Country Division
Rate Design

GWS Unmetered Rate

For rate design purposes, it is estimated that each of the existing 49 unmetered customers would be served by a 5/8" meter and would use 50 CCF per year.

Unmetered Rate:

Customer Charge Portion:			
\$ 42.17	12 Bills	\$	506.04
Usage Portion:			
\$ 9.24	50 CCF	\$	462.00
Total Annual Charge =		\$	968.04
Monthly Charge		\$	80.67

Pittsfield Aqueduct Company, Inc.
North Country Division
Calculation of Revenues Under Developed Rates

General Water Service

<u>Residential:</u>					
<u>Meter Size</u>	<u>Number of Meters</u>	<u>Number of Bills</u>	<u>Developed Rate</u>	<u>Developed Revenue</u>	
5/8"	1,060	12,720	\$ 42.17	\$ 536,402.40	
Total	1,060	12,720		\$ 536,402.40	49.97%
Volume:	<u>CCFT</u> 52,978		\$ 9.24	\$ 489,516.72	45.61%
<u>Unmetered</u>					
	<u>Number of Services</u>	<u>Number of Bills</u>	<u>Developed Rate</u>	<u>Developed Revenue</u>	
	10	120	\$ 80.67	\$ 9,680.40	
	39	468	\$ 80.67	37,753.56	
Total	49	588		\$ 47,433.96	4.42%
Grand Total GWS Revenue				\$ 1,073,353.08	100.00%
Grand North Country Revenue				\$ 1,073,353.08	
Net Revenue Requirement				\$ 1,073,247.00	
Difference				\$ 106.08	
				0.010%	
				Negligible	