

1 SUPPLEMENTAL TESTIMONY

2 OF

3 HERMAN G. ROSEMAN

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5 Q. Are you the same Herman G. Roseman whose testimony  
6 was previously submitted in this proceeding?

7 A. Yes.

8 Q. What is the purpose of your present testimony?

9 A. The purpose of my present testimony is to revise  
10 an aspect of my previous testimony.

11 Q. Please describe this revision.

12 A. In reviewing Staff rebuttal testimony to me in the  
13 LILCO proceeding, I found that the Staff witness had un-  
14 covered an important fact which merited incorporation in  
15 my statistical model. What he found was that there was  
16 an "interaction effect" between two of the variables in  
17 my regression equation. More specifically, the effect of  
18 AFDC on the price of a utility's stock depends on how high  
19 is the ratio of dividends to cash flow, and vice versa.  
20 This fact can be reflected in my statistical model by  
21 including as a new variable the product of the AFDC vari-  
22 able and the dividends/cash-flow variable. I have accord-  
23 ingly recalculated my regression equation to include this  
24 new variable and to exclude the former AFDC variable which  
25 becomes statistically insignificant. Technical details  
26 are shown on my revised Schedules 7A and 8A of my exhibit.



1 Q. What is the effect on your results of this revision  
2 in the statistical model?

3 A. The revised model indicates that, in order to  
4 bring Niagara Mohawk's market price into equality with  
5 book value, the required return on equity would be 13.54  
6 percent, rather than 13.65 percent. Also, to bring the  
7 market price 20 percent above book value would require a  
8 return of 15.7 percent, instead of 15.8 percent. Finally,  
9 the model indicates that if AFDC were only 15 percent of  
10 net income, Niagara Mohawk's cost of equity would be  
11 reduced by 0.9 percentage points.

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MULTIPLE REGRESSION COEFFICIENTS AND VALUES  
OF INDEPENDENT VARIABLES

First Three Quarters 1975

Independent Variables	Regression Coefficients <sup>1</sup>	Values of Independent Variables	
		Niagara Mohawk	94-Company Average
X <sub>1</sub> Rate of Return on Common Equity, 1974	.0245287	9.95%	10.50%
X <sub>2</sub> Square of the Rate of Return on Common Equity, 1973	.000975397	57.76	127.79
X <sub>3</sub> Square of Rate of Return on Common Equity, Value Line Estimate for 1975	.00133461	100.00	130.90
X <sub>4</sub> Accounting Method: 1 if Flowthrough, 0 if not Flowthrough	-.145028	1	0.44
X <sub>5</sub> Oil as Percent of All Fuels Used in Generation, 1974	-.000853993	23.00%	20.14%
X <sub>6</sub> Ratio of Dividends to Cash Flow, 1974	.928124	0.46	0.41
X <sub>7</sub> AFDC as Percent of Net Income for Common, 1974 Multiplied by the Ratio of Dividends to Cash Flow, 1974	-.00682379	17.74%	15.96%

$$^1 \frac{P}{B} = .100847 + .0245287(X_1) + .000975397(X_2) + .00133461(X_3) - .145028(X_4) \\ - .000853993(X_5) + .928124(X_6) - .00682379(X_7)$$



DETAILS OF MULTIPLE REGRESSION EQUATION

First Three Quarters 1975

<u>Variable</u>	<u>Regression Coefficient</u>	<u>Standard Error of Regression</u>	<u>t-Ratio</u>	<u>Mean</u>	<u>Standard Deviation</u>
Constant Term	.100847	.0623733	1.617	-	-
X <sub>1</sub>	.0245287	.0064121	3.825	10.5035	1.94593
X <sub>2</sub>	.000975397	.000343164	2.842	127.793	41.3706
X <sub>3</sub>	.00133461	.000334798	3.986	130.899	37.4298
X <sub>4</sub>	-.145028	.0208378	-6.960	.43617	.498568
X <sub>5</sub>	-.000853993	.000346044	-2.468	20.1383	28.7041
X <sub>6</sub>	.928124	.142058	6.533	.408772	.128957
X <sub>7</sub>	-.00682379	.00112292	-6.077	15.9561	15.4478

$$\bar{R} = .890949$$

$$\bar{R}^2 = .793790$$

$$\text{Standard Error of Estimate} = .0847844$$

$$\text{d.f.} = 86$$





NIAGARA MOHAWK POWER CORPORATION  
STUDY OF COST OF CAPITAL  
AND OTHER DATA  
USED IN DETERMINATION OF FAIR RATE OF RETURN



NIAGARA MOHAWK POWER CORPORATION  
 AVERAGE OF 95 ELECTRIC UTILITIES  
 MONTH-END CLOSING PRICES

1973 - 1975

<u>Month/Year</u>	<u>Month-End Closing Price</u>	
	<u>Niagara Mohawk</u> (1)	<u>95 Electric Utilities</u> (2)
<u>1973</u>		
January	\$16.88	\$25.27
February	16.50	24.73
March	15.88	24.18
April	15.88	23.77
May	15.88	23.65
June	15.88	23.16
July	15.00	22.33
August	14.50	21.83
September	15.00	23.22
October	14.75	21.96
November	13.00	19.38
December	13.38	19.82
<u>1974</u>		
January	14.25	20.59
February	13.88	20.56
March	13.50	19.58
April	11.00	17.18
May	9.63	15.95
June	8.50	14.89
July	9.25	14.99
August	8.75	13.77
September	8.38	13.39
October	8.75	14.47
November	8.13	14.16
December	8.00	13.57
<u>1975</u>		
January	10.38	16.66
February	10.63	16.61
March	10.50	16.21
April	10.25	15.94
May	10.25	16.97
June	11.88	18.67
July	11.63	17.66
August	11.50	17.24
September	11.25	16.98
October	12.50	18.16

Source: 1973 to May 1974: Standard & Poor's Corporation, Security Owner's Stock Guide, various issues.  
 June 1974 to October 1975: The Wall Street Journal, various issues.



NIAGARA MOHAWK POWER CORPORATION  
 MONTH-END PRICE-BOOK AND DIVIDEND-PRICE RATIOS<sup>1</sup>

1973 - 1975

<u>Month/Year</u>	<u>Price-Book Ratio</u> (1)	<u>Dividend-Price Ratio</u> (2)
<u>1973</u>		
January	1.01	6.8%
February	0.99	6.9
March	0.95	7.2
April	0.95	7.2
May	0.95	7.2
June	0.95	7.2
July	0.90	7.6
August	0.87	7.9
September	0.90	7.6
October	0.88	7.7
November	0.78	9.1
December	0.80	8.8
<u>1974</u>		
January	0.86	8.3
February	0.84	8.5
March	0.82	8.7
April	0.67	10.7
May	0.58	12.3
June	0.52	13.9
July	0.56	12.8
August	0.53	13.5
September	0.51	14.1
October	0.53	13.5
November	0.49	14.5
December	0.48	14.7
<u>1975</u>		
January	0.63	11.4
February	0.64	11.1
March	0.64	11.2
April	0.62	11.5
May	0.62	11.5
June	0.72	9.9
July	0.71	10.2
August	0.70	10.3
September	0.68	11.0
October	0.76	9.9

<sup>1</sup> Prices used in calculations are month-end closing prices. Price-book ratios for 1973, 1974 and 1975 use 1972, 1973 and 1974 book value per share, respectively.

Source:

Col. (1): Derived from data in Standard & Poor's Corporation, Security Owner's Stock Guide, various issues; The Value Line Investment Survey, Edition 5, May 10, 1974 and May 9, 1975; Value Line FUNDAC Data Base; and The Wall Street Journal, various issues.

Col. (2): Standard & Poor's Corporation, Security Owner's Stock Guide, various issues; and The Wall Street Journal, various issues.



AVERAGE OF 95 ELECTRIC UTILITIES  
 MONTH-END PRICE-BOOK AND DIVIDEND-PRICE RATIOS<sup>1</sup>

1973 - 1975

<u>Month/Year</u>	<u>Price-Book Ratio</u> (1)	<u>Dividend-Price Ratio</u> (2)
<u>1973</u>		
January	1.35	6.13
February	1.32	6.3
March	1.29	6.4
April	1.26	6.5
May	1.25	6.5
June	1.23	6.6
July	1.19	7.0
August	1.16	7.1
September	1.23	6.7
October	1.16	7.1
November	1.02	8.0
December	1.05	7.9
<u>1974</u>		
January	1.04	7.6
February	1.04	7.6
March	0.99	8.0
April	0.87	9.0
May	0.81	9.9
June	0.76	10.6
July	0.76	10.8
August	0.70	11.7
September	0.68	12.0
October	0.74	11.3
November	0.72	11.6
December	0.69	12.1
<u>1975</u>		
January	0.83	9.7
February	0.83	9.7
March	0.81	9.9
April	0.79	10.1
May	0.84	9.5
June	0.93	8.6
July	0.88	9.1
August	0.86	9.3
September	0.84	9.4
October	0.90	8.9

<sup>1</sup> Prices used in calculations are month-end closing prices. Price-book ratios for 1973, 1974 and 1975 use 1972, 1973 and 1974 book value per share, respectively.

Source:

- Col. (1): Derived from data in Standard & Poor's Corporation, Security Owner's Stock Guide, various issues; The Value Line Investment Survey, Edition 5, May 10, 1974 and May 9, 1975; Value Line FUNDAC Data Base; and The Wall Street Journal, various issues.
- Col. (2): Standard & Poor's Corporation, Security Owner's Stock Guide, various issues; and The Wall Street Journal, various issues.





MONTHLY YIELDS ON NEWLY ISSUED  
 A-RATED PUBLIC UTILITY BONDS

1973 - 1975

<u>Month/Year</u>	<u>Yield</u>
<u>1973</u>	
January	7.54%
February	7.68
March	7.69
April	7.66
May	7.68
June	7.87
July	8.21
August	8.76
September	8.18
October	8.38
November	8.10
December	8.21
<u>1974</u>	
January	8.50
February	8.49
March	8.81
April	9.40
May	9.81
June	9.95
July	11.05
August	10.75
September	11.02
October	10.75
November	9.90
December	10.25
<u>1975</u>	
January	9.71
February	9.42
March	10.16
April	10.94
May	10.00
June	9.87
July	10.38
August	10.76
September	10.83
October	10.46

Source: Moody's Investors Service, Moody's Bond Survey, various issues.



94. ELECTRIC UTILITIES INCLUDED IN STUDY

1. Allegheny Power System
2. American Electric Power
3. Arizona Public Service
4. Atlantic City Electric
5. Baltimore Gas and Electric
6. Boston Edison
7. Carolina Power & Light
8. Central Hudson Gas & Electric
9. Central Illinois Light
10. Central Illinois Public Service
11. Central Louisiana Electric
12. Central Maine Power
13. Central & South West Corp.
14. Cincinnati Gas & Electric
15. Cleveland Electric
16. Columbus & Southern Ohio Electric
17. Commonwealth Edison
18. Consolidated Edison
19. Consumers Power
20. Dayton Power & Light
21. Delmarva Power & Light
22. Detroit Edison
23. Duke Power
24. Duquesne Light
25. Eastern Utilities Associates
26. Empire District Electric
27. Florida Power Corp.
28. Florida Power & Light
29. General Public Utilities
30. Gulf States Utilities
31. Hawaiian Electric
32. Houston Light & Power
33. Idaho Power
34. Illinois Power
35. Indianapolis Power & Light
36. Interstate Power
37. Iowa-Illinois Gas & Electric
38. Iowa Power & Light
39. Iowa Public Service
40. Kansas City Power & Light
41. Kansas Gas & Electric
42. Kansas Power & Light
43. Kentucky Utilities
44. Long Island Lighting
45. Louisville Gas & Electric
46. Middle South Utilities



94 ELECTRIC UTILITIES INCLUDED IN STUDY

47. Minnesota Power & Light
48. Missouri Public Service
49. Montana-Dakota Utilities
50. Montana Power
51. Nevada Power
52. New England Electric System
53. New England Gas and Electric
54. New York State Electric & Gas
55. Niagara-Mohawk
56. Northeast Utilities
57. Northern Indiana Public Service
58. Northern States Power (Minn.)
59. Ohio Edison
60. Oklahoma Gas & Electric
61. Orange & Rockland Utilities
62. Pacific Gas & Electric
63. Pacific Power & Light
64. Pennsylvania Power & Light
65. Philadelphia Electric
66. Portland General Electric
67. Potomac Electric Power
68. Public Service Co. of Colorado
69. Public Service Co. of Indiana
70. Public Service Co. of New Hampshire
71. Public Service Co. of New Mexico
72. Public Service Electric & Gas
73. Puget Sound Power & Light
74. Rochester Gas & Electric
75. St. Joseph Light & Power
76. San Diego Gas & Electric
77. Savannah Electric & Power
78. Sierra Pacific Power
79. South Carolina Electric & Gas
80. Southern California Edison
81. Southern Company
82. Southern Indiana Gas & Electric
83. Southwestern Public Service
84. Tampa Electric
85. Texas Utilities
86. Toledo Edison
87. Tucson Gas & Electric
88. Union Electric
89. United Illuminating
90. Utah Power & Light
91. Virginia Electric & Power
92. Washington Water Power
93. Wisconsin Electric Power
94. Wisconsin Public Service



INDEPENDENT VARIABLES CONSIDERED IN  
MULTIPLE REGRESSION ANALYSIS

1. Rate of Return on Common Equity Capital, 1973
2. Rate of Return on Common Equity Capital, 1974
3. Rate of Return on Common Equity Capital: earnings in last two quarters of 1974 and first two quarters of 1975 divided by year-end 1974 book value per share
4. Rate of Return on Common Equity Capital: four times quarterly average of six quarters of earnings (four quarters of 1974 and first two quarters of 1975) divided by year-end 1974 book value per share
5. Rate of Return on Common Equity Capital: estimate for 1975 derived by applying percentage change in earnings per share between first two quarters of 1974 and first two quarters of 1975 to 1974 return on equity
6. Rate of Return on Common Equity Capital, Value Line estimate for 1975
7. No. 1, squared
8. No. 2, squared
9. No. 3, squared
10. No. 4, squared
11. No. 5, squared
12. No. 6, squared
13. Log of No. 1
14. Log of No. 2
15. Log of No. 3
16. Log of No. 4
17. Log of No. 5





INDEPENDENT VARIABLES CONSIDERED IN  
MULTIPLE REGRESSION ANALYSIS

18. Log of No. 6
19. Common Equity as Percent of Total Capital,  
1974
20. No. 19, squared
21. Log of No. 19
22. Log of Total Revenue, 1974
23. Accounting Method: 1 if flowthrough, 0 if not  
flowthrough
24. Type of Regulation: 0 if original cost, 1 if  
otherwise
25. Holding Company: 1 if holding company, 0 if  
otherwise
26. Electric Revenue as Percent of Total Revenue,  
1974
27. Variability in Earnings Per Share, 1959-1974
28. Variability in Market Price, 1959-1974
29. Oil as Percent of All Fuels Used in Generation,  
1974
30. Projected Growth Rate in Per Share Revenues  
from 1972-1974 to 1977-1979, per Value Line
31. Projected Growth Rate in Per Share Cash Flow  
from 1972-1974 to 1977-1979, per Value Line
32. Projected Growth Rate in Per Share Earnings  
from 1972-1974 to 1977-1979, per Value Line
33. Projected Growth Rate in Per Share Book Value  
from 1972-1974 to 1977-1979, per Value Line
34. Average of Nos. 30, 31, 32, and 33
35. Average Annual Growth Rate in Number of Common  
Shares, 1969-1974



INDEPENDENT VARIABLES CONSIDERED IN  
MULTIPLE REGRESSION ANALYSIS

36. Projected Annual Growth Rate in Number of Common Shares, 1974-1978, per Value Line
37. Average Annual Growth Rate in Net Plant, 1969-1974
38. Projected Annual Growth Rate in Net Plant, 1974-1978, per Value Line
39. No. 38, squared
40. Projected Growth Rate in Capital Spending Per Share, 1974-1978, per Value Line
41. Deferred Taxes ÷ Revenues, 1974
42. Deferred Taxes ÷ Net Income, 1974
43. AFDC as Percent of Net Income, 1974
44. Ratio of Dividends to Cash Earnings, 1974
45. Ratio of Dividends to Cash Flow, 1974
46. Projected 1975 Capital Spending ÷ Net Plant Year-end 1974



MULTIPLE REGRESSION COEFFICIENTS AND VALUES  
OF INDEPENDENT VARIABLES

First Three Quarters 1975

Independent Variables	Regression Coefficients <sup>1</sup>	Values of Independent Variables	
		Niagara Mohawk	94-Company Average
X <sub>1</sub> Rate of Return on Common Equity, 1974	.0255174	9.95%	10.50%
X <sub>2</sub> Square of the Rate of Return on Common Equity, 1973	.000982554	57.76	127.79
X <sub>3</sub> Square of Rate of Return on Common Equity, Value Line Estimate for 1975	.00132095	100.00	130.90
X <sub>4</sub> Accounting Method: 1 if Flowthrough, 0 if not Flowthrough	-.134129	1	0.44
X <sub>5</sub> Oil as Percent of All Fuels Used in Generation, 1974	-.00086935	23.00%	20.14%
X <sub>6</sub> AFDC as Percent of Net Income for Common, 1974	-.00268022	38.32%	34.36%
X <sub>7</sub> Ratio of Dividends to Cash Flow, 1974	.554664	0.46	0.41

$$\begin{aligned}
 \frac{P}{B} = & .222751 + .0255174(X_1) + .000982554(X_2) + .00132095(X_3) - .134129(X_4) \\
 & - .00086935(X_5) - .00268022(X_6) + .554664(X_7)
 \end{aligned}$$



DETAILS OF MULTIPLE REGRESSION EQUATION

First Three Quarters 1975

<u>Variable</u>	<u>Regression Coefficient</u>	<u>Standard Error of Regression</u>	<u>t-Ratio</u>	<u>Mean</u>	<u>Standard Deviation</u>
Constant Term	.222751	.062754	3.550	-	-
X <sub>1</sub>	.0255174	.00677084	3.769	10.5035	1.94593
X <sub>2</sub>	.000982554	.000363943	2.700	127.793	41.3706
X <sub>3</sub>	.00132095	.000354616	3.725	130.899	37.4298
X <sub>4</sub>	-.134129	.021718	-6.176	.43617	.498568
X <sub>5</sub>	-.00086935	.000368683	-2.358	20.1383	28.7041
X <sub>6</sub>	-.00268022	.000546012	-4.909	34.3554	24.501
X <sub>7</sub>	.554664	.108838	5.096	.408772	.128957

$$\bar{R} = .877357$$

$$\bar{R}^2 = .769755$$

Standard Error of Estimate = .0895894

d.f. = 86





94 ELECTRIC UTILITIES  
 BAREBONES COST OF COMMON EQUITY CAPITAL

First Three Quarters 1975

<u>Company</u>	<u>Barebones Cost of Equity</u>
1. Allegheny Power System	13.22 <sup>3</sup>
2. American Electric Power	12.76
3. Arizona Public Service	14.07
4. Atlantic City Electric	13.61
5. Baltimore Gas and Electric	13.09
6. Boston Edison	13.77
7. Carolina Power & Light	13.45
8. Central Hudson Gas & Electric	14.87
9. Central Illinois Light	12.96
10. Central Illinois Public Service	12.09
11. Central Louisiana Electric	11.87
12. Central Maine Power	11.58
13. Central & South West Corp.	11.90
14. Cincinnati Gas & Electric	13.04
15. Cleveland Electric	13.40
16. Columbus & Southern Ohio Electric	13.47
17. Commonwealth Edison	12.32
18. Consolidated Edison	15.57
19. Consumers Power	12.80
20. Dayton Power & Light	12.82
21. Delmarva Power & Light	13.99
22. Detroit Edison	12.59
23. Duke Power	13.72
24. Duquesne Light	13.10
25. Eastern Utilities Associates	13.18
26. Empire District Electric	11.31
27. Florida Power Corp.	14.74
28. Florida Power & Light	13.73
29. General Public Utilities	13.42
30. Gulf States Utilities	12.47
31. Hawaiian Electric	13.68
32. Houston Light & Power	12.34
33. Idaho Power	12.63
34. Illinois Power	11.31
35. Indianapolis Power & Light	11.62
36. Interstate Power	11.15
37. Iowa-Illinois Gas & Electric	12.26
38. Iowa Power & Light	12.25
39. Iowa Public Service	12.59
40. Kansas City Power & Light	11.95
41. Kansas Gas & Electric	12.13
42. Kansas Power & Light	11.74
43. Kentucky Utilities	11.98
44. Long Island Lighting	14.12
45. Louisville Gas & Electric	11.55
46. Middle South Utilities	13.31



94 ELECTRIC UTILITIES  
 BAREBONES COST OF COMMON EQUITY CAPITAL

First Three Quarters 1975

<u>Company</u>	<u>Barebones Cost of Equity</u>
47. Minnesota Power & Light	11.78%
48. Missouri Public Service	12.57
49. Montana-Dakota Utilities	12.36
50. Montana Power	11.19
51. Nevada Power	15.03
52. New England Electric System	13.49
53. New England Gas and Electric	13.12
54. New York State Electric & Gas	13.37
55. Niagara-Mohawk	13.65
56. Northeast Utilities	13.96
57. Northern Indiana Public Service	12.15
58. Northern States Power (Minn.)	12.95
59. Ohio Edison	12.47
60. Oklahoma Gas & Electric	11.48
61. Orange & Rockland Utilities	13.13
62. Pacific Gas & Electric	13.66
63. Pacific Power & Light	12.62
64. Pennsylvania Power & Light	14.07
65. Philadelphia Electric	12.11
66. Portland General Electric	11.48
67. Potomac Electric Power	13.25
68. Public Service Co. of Colorado	13.92
69. Public Service Co. of Indiana	11.68
70. Public Service Co. of New Hampshire	14.16
71. Public Service Co. of New Mexico	12.21
72. Public Service Electric & Gas	14.41
73. Puget Sound Power & Light	13.92
74. Rochester Gas & Electric	13.47
75. St. Joseph Light & Power	12.60
76. San Diego Gas & Electric	14.03
77. Savannah Electric & Power	13.83
78. Sierra Pacific Power	14.14
79. South Carolina Electric & Gas	12.12
80. Southern California Edison	14.20
81. Southern Company	13.41
82. Southern Indiana Gas & Electric	12.14
83. Southwestern Public Service	11.33
84. Tampa Electric	12.88
85. Texas Utilities	12.19
86. Toledo Edison	12.38
87. Tucson Gas & Electric	13.98
88. Union Electric	13.09
89. United Illuminating	15.06
90. Utah Power & Light	13.16
91. Virginia Electric & Power	14.36
92. Washington Water Power	12.38
93. Wisconsin Electric Power	11.90
94. Wisconsin Public Service	12.49
Average	12.95%
Standard Deviation	0.99

