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Wisconsin River Power Company: real estate values for Quincy Township. January 1, 1980

Landmark Research, Inc.

[s.l.]: [s.n.], January 1, 1980

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WISCONSIN RIVER POWER COMPANY
REAL ESTATE VALUES FOR QUINCY TOWNSHIP
AS OF JANUARY 1, 1980

Landmark
Research
Inc.

WISCONSIN RIVER POWER COMPANY
REAL ESTATE VALUES FOR QUINCY TOWNSHIP
AS OF JANUARY 1, 1980

Landmark
Research
Inc.

July 5, 1985

James A. Graaskamp, Ph.D., S.R.E.A., C.R.E.
Jean B. Davis, M.S.

John C. Riley, Esq.
44 East Mifflin Street, Suite 201
Madison, WI 53703

Dear John:

Re: Wisconsin River Power Company Real Estate Values for Quincy Township as of January 1, 1980

Landmark Research, Inc., has completed its valuation of the Castle Rock-Petenwell Hydroelectric System (the System) in accordance with the general directions of Judge Wallace A. Brady, in his opinion dated February 7, 1985. We have converted this fair market value of the total System as of January 1, 1980, to an equalized value allocated to the Quincy Township tax roll and are prepared to sign the roll (as a state Certified Assessor) with the value conclusions below.

Our valuation process is designed to permit replication in each successive year with sensitivity to changing market prices for output, changing costs of production, and other capital cost factors that should be considered each year and to allocate the resulting economic income valuation conclusion to each township affected by the hydroelectric System. Critical data sources from which certain data was extracted are provided in Appendices A, B, and C. Fair market value is qualified by the definitions of fair market value in Appendix D, the limiting conditions in Appendix E, and the certification of value in Appendix F. Our conclusions and basic analysis follow in this letter report of value.

CONCLUSIONS

WE HAVE CONCLUDED THAT THE FAIR MARKET VALUE OF LAND, SITE IMPROVEMENTS, AND REAL ESTATE STRUCTURES RELATED TO THE HYDROELECTRIC SYSTEM OWNED BY THE WISCONSIN RIVER POWER COMPANY AND KNOWN AS THE CASTLE ROCK-PETENWELL HYDROELECTRIC SYSTEM (THE SYSTEM), AS OF JANUARY 1, 1980, IS:

THIRTY-FOUR MILLION DOLLARS

(\$34,000,000)

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WE HAVE FURTHER CONCLUDED THAT THE TOTAL VALUE OF THE SYSTEM CAN BE ALLOCATED BY HISTORICAL COST WHICH INDICATES THAT 0.366716 OF THIS TOTAL VALUE IS LOCATED IN THE TOWNSHIP OF QUINCY TOTALLING \$12,468,339 OF FAIR MARKET VALUE. TO THIS VALUE ALLOCATION THE EQUALIZATION RATE FOR THE TOWNSHIP OF QUINCY IN 1980 OF 0.3959 MUST BE APPLIED TO DETERMINE THAT JANUARY 1, 1980, EQUALIZED ASSESSMENT VALUE TO BE RECORDED IS:

FOUR MILLION NINE HUNDRED AND
THIRTY-SIX THOUSAND DOLLARS

(\$4,936,000)

EXPLANATION OF ANALYSIS

The final computations of value reflecting potential investment income to the next possible owner of the System are provided in Exhibit 1, while allocations to each of the affected townships and equalized values as of January 1, 1980, are provided in Exhibit 2. Each element in these final calculations are explained more fully in supporting footnotes and tables referenced therein. We did not believe it necessary to provide the full legal descriptions, maps, photographs, and other descriptive materials typically provided in a narrative appraisal for property of this type because those materials have been generated in quantity during the history of litigation surrounding the property and various township jurisdictions implementing assessments. Instead, it is our purpose to provide the methodology which can be applied each year to value the System consistent with court direction and to allocate the total value to each township affected so that an equitable and internally consistent real estate tax value base is provided each assessment district and each taxpayer.

The model used to integrate market prices for power, cost of production, financing, and other assumptions were expressed by the use of a spread sheet system called Lotus 1.2.3 and the model is available to the client on floppy disc if the client has access to an I.B.M. PC, the basic Lotus software system.

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Certain constraints on the selection of appropriate data should be noted:

1. Perspective. Valuation for tax assessment in Wisconsin must assume value from the viewpoint of the next owner and reflect alternatives available to prospective purchasers in the actual marketplace. Presumably the next purchaser is buying only the System, with the intent of selling electricity wholesale to those accustomed to buy power on a wholesale basis. The seller-owner of the system would not have transmission facilities so that the price per kilowatt hour sold should not contain a cost of transmission factor.
2. License Demand in 1998. The next buyer would purchase subject to termination of the present license in 1998 with some element of uncertainty as to whether the Federal Energy Resource Commission would renew the license; there is no precedent for non-renewal relative to private citizens as compared to facilities utilizing Indian reservation land. Nevertheless, the appraiser has assumed a 50/50 probability of renewal and provided for recapture of 50 percent of capital in 18 years on a straight line basis of 0.0278.
3. Pricing Kilowatt Output. The Wisconsin Public Service Commission (PSC) provides a report on wholesale purchases of electricity by all the power companies and paper companies and the average rate paid is provided in Appendix C for 1980. These average rates include both production and transmission costs and blend all types of generation, i.e., hydro, coal, gas, and nuclear. These rates should blend on-peak and off-peak purchase prices. However, in 1980, not all accounting records made those distinctions. The average wholesale cost of kilowatt hours paid by 16 Class A utilities was 2.7 cents with a standard deviation of 0.27763 cents. Assuming the hypothetical buyer would price one standard deviation below the average rate, for a competitive edge and to extract hidden transmission costs which may or may not exist in the data, it would suggest an average price covering both on-peak and off-peak hours of 2.42299 cents per hour as an average sales price for production.

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This average rate differs from marginal or cost avoidance rates, which are the costs to produce the last needed unit of production on the least efficient generator of a utility. Today, it is a two-part rate reflecting the cost of generation and the avoided cost of generator construction. These rates were not computed exactly in the same fashion in 1980. However, it was necessary for Wisconsin power companies to provide cost-to-avoid rates under the Public Utilities Regulatory Power Act of 1978 (PURPA) and these filings have improved progressively since 1980 in terms of accounting standardization and industry understanding. Cost-to-avoid rates were available for on-peak and off-peak hours from a number of Wisconsin companies for 1980. (See Appendix B) The average for all of these rates, on-peak and off-peak, without inclusion of transmission costs, was 2.144 cents. This low average reflects the large number of hours classified as off-peak, although a wholesaler would be expected to sell most of his power at on-peak times. When the average cost avoidance rate is adjusted for one standard deviation of 0.3 cents, the average rate is 2.445 cents which is virtual confirmation of the downward adjusted wholesale cost above. Therefore, pricing the kilowatt hour production is related to both the average market rate for wholesale purchases and cost of production economies available to buyers on a wholesale basis from the System.

The total revenue forecasted is further detailed in Exhibit 1 and Footnotes 2-6 which support Exhibits 1 and 2.

4. Expenses. It should be noted that historical expenses of the present owners include real estate taxes, which are the current subject of dispute, so that these real estate costs have been removed from operating expense estimates. Instead, the real estate tax has been introduced as a component of the capitalization rate, a common methodology for income capitalization appraisals. In this case, a weighted average annual real estate tax rate for all townships taxing the subject property was constructed to avoid the circular process of expensing real estate taxes before establishing value for the basis of assessing real estate taxes.

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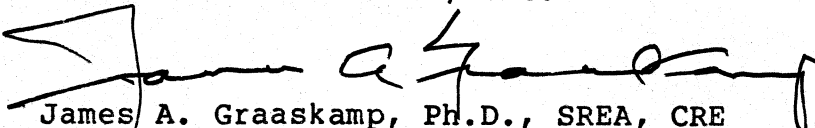
5. Rate of Return on Investment. Reference to the fair market value definition which is the basis for Wisconsin taxation (see Appendix D) indicates that the influence of financial leverage should be ignored. Therefore, the appraiser has used the average rate of return on total capital employed by reporting Wisconsin utilities to establish a return on money invested. The allowance for recapture of capital to anticipate possible loss of license or major capital refurbishment not already anticipated in maintenance expense is a generous 2.78 percent so that the overall cap rate is 13.48 percent before loading for the real estate tax expressed as a percent of full value.

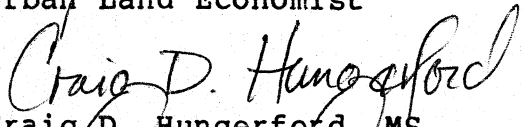
DATA SOURCES

Information provided in this report was accomplished with the assistance of a number of experienced professionals. Field research was conducted by Professional Engineer Bertil W. Johnson, who has a long history in Wisconsin hydroelectric design and operation, and he was working directly under sub-contract to Landmark Research, Inc. In addition, Wayne DeForest of PSC provided critical review of accounting data quality for the years of 1979 and forward. The appraisal qualifications of Landmark Research, Inc., personnel are provided in Appendix G.

We look forward to an opportunity to present our conclusions to the appropriate parties and clarify any points which are left unclear.

FOR LANDMARK RESEARCH, INC.


James A. Graaskamp, Ph.D., SREA, CRE
Urban Land Economist


Craig D. Hungerford, MS
Real Estate Appraiser/Analyst

Enclosures

elm

EXHIBIT 1

SUMMARY OF NORMALIZED INCOME ESTIMATE
AND RELATED CAPITALIZATION RATE COMPONENTS
FOR WISCONSIN RIVER POWER COMPANY
ASSUMING AVERAGE COST AVOIDANCE RATES
POSTED BY WISCONSIN ELECTRIC UTILITIES TO DETERMINE
ECONOMIC INCOME VALUE AS OF JANUARY 1, 1980

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INCOME APPROACH TO VALUE

PETENWELL GENERATING CAPACITY [1a]	175,320,000
CASTLE ROCK GENERATING CAPACITY [1b]	131,400,000
SYSTEM CAPACITY (KWH's) [1c]	306,720,000
AVERAGE ANNUAL KWH's [2]	231,420,000

ELECTRIC ENERGY RATES

ON-PEAK KWH's [3]	91,902,904
OFF-PEAK KWH's [4]	139,517,096
ANNUAL ON-PEAK RATE	0.03553
ANNUAL OFF-PEAK RATE [5]	0.01715
AVERAGE ADJUSTED RATE	0.02445
ANNUAL WATER SALES BY CONSOLIDATED WATER POWER CO. [6]	\$471,801

TOTAL REVENUE	6,129,463
EXPENSES (PER KWH) [7]	0.0042
TOTAL EXPENSES	961,920
NET OPERATING INCOME	\$5,167,543

=====

CAPITALIZATION RATE

UNLEVERAGED RATE OF RETURN ON TOTAL CAPITAL [8]	10.70%
--	--------

ALLOWANCE FOR RECAPTURE (50% of value remaining over term of the lease ending in 1998, 50/18) [9]	2.78%
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AVERAGE ANNUAL EQUALIZED REAL ESTATE TAX RATE FOR TOWNSHIPS IN WATERSHED [10]	1.71%
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TOTAL CAPITALIZATION RATE	15.19%
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TOTAL ECONOMIC INCOME VALUE	\$34,000,000
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EXHIBIT 2

ECONOMIC INCOME VALUE BASED ON AVOIDED COST RATES
 ALLOCATED TO TOWNSHIPS BY HISTORICAL COST RATIOS
 AND THEN CONVERTED BY TOWNSHIP EQUALIZATION RATES
 TO INDICATED 1980 ASSESSED VALUE

	HISTORICAL COST PERCENTAGE ALLOCATION [11]	VALUE ALLOCATION PRO RATA ON HISTORICAL COST [12]	EQUALIZATION RATE [13]	1980 EQUALIZED VALUE
ARMENIA	0.080421	\$2,734,324	0.2189	\$598,544
GERMANTOWN	0.054813	\$1,863,628	0.6179	\$1,151,536
MONROE	0.044364	\$1,508,379	0.339	\$511,340
NECEDAH	0.305685	\$10,393,273	0.1626	\$1,689,946
QUINCY	0.366716	\$12,468,339	0.3959	\$4,936,215
PORT EDWARDS	0.002859	\$97,209	0.652	\$63,380
ROME	0.017659	\$600,409	1.0151	\$609,475
SARATOGA	0.004036	\$137,236	0.9755	\$133,874
STRONGS PRAIRIE	0.123447	\$4,197,198	0.6545	\$2,747,066
TOTALS	1.000000	\$34,000,000	NA	\$12,441,377

FOOTNOTES TO EXHIBITS 1 AND 2

- [1a] Generating capacity at the Petenwell facility as reported by Wisconsin River Power Company (WRPC). See Appendix A.
- [1b] Generating capacity at the Castle Rock facility as reported by WRPC. See Appendix A.
- [1c] Total system capacity in kilowatt hours (kwh).

	<u>Petenwell</u>	<u>Castle Rock</u>
Kilowatts	20,000	15,000
Hrs/Year	x 8,760	x 8,760
Kilowatt hours	175,320,000	131,400,000
 Total kwh Capacity	 306,720,000	

- [2] Total kwh's produced in 1980 as reported by WRPC.

Petenwell	118,073,000 kwh's
Castle Rock	<u>113,347,000 kwh's</u>
 TOTAL	 231,420,000 kwh's =====

- [3] Calculation of on-peak kwh's.

- a. Assume, at peak rates, the plants at Castlerock and Petenwell can operate at 80 percent efficiency or generate 245,448,000 kwh's annually out of a system capacity of 306,720,000 kwh's per year.
- b. At 80 percent efficiency the plants generate 28,019.178 kw per hour (245,448,000 kwh's/8760 hour per year).
- c. On-peak hours for selected Wisconsin Electric Utilities in 1980 are shown below.

<u>Utility</u>	<u>On-Peak Generation Hours</u>	<u>Hours/Year</u>
Madison Gas & Electric	11 hours per day, 5 days per week, less holidays	2,682
Northern States Power	12 hours per day, 5 days per week, less holidays	2,952

<u>Utility</u>	<u>On-Peak Generation Hours</u>	<u>Hours/Year</u>
Wisconsin Public Service Corporation	12 hours per day, 7 days per week	4,368
Wisconsin Power & Light Company	12 hours per day, 12 hours per day	<u>3,120</u>
TOTAL		13,122
		=====
AVERAGE		3,280
		=====

d. 1980 average on-peak kwh's

3,280 hours per year
28,019.178 kw's per hour at 80 percent plan efficiency

91,902,904 kwh's per year

[4] 1980 average off-peak kwh's

1980 kwh generation	231,420,000
less on-peak generation	<u>91,902,904</u>
1980 off-peak generation	139,517,096 kwh's
	=====

[5] Cost Avoidance Rates for 1980.

Madison Gas and Electric		Average rates:	
On-peak	2.3525	On-peak	2.981
On-peak	1.50	Off-peak	1.593
		Standard deviation:	
		On-peak:	0.572
		Off-peak	0.122
Wisconsin Electric Power Company		Average rates plus one standard deviation:	
On-peak	3.87	On-peak	3.553
Off-peak	1.45	Off-peak	1.715
Wisconsin Public Service Corporation		Average adjusted rate:	2.445
On Peak	2.64	Average Adjusted	
On-peak	1.67	Standard Deviation:	0.301
Wisconsin Power and Light			
On-peak	3.0625		
Off-peak	1.750		

- a. Madison Gas and Electric rates are a blending of winter and summer rates as quoted in March 6, 1980, see Appendix B.
- b. Wisconsin Electric Power Company rates are also a blend of summer/winter rates for Firm Surplus energy purchase, see Appendix B.
- c. Wisconsin Public Service Corporation. As per a conversation with Jennifer Fagan (2/27/81) of the Public Service Commission (PSC), the following avoided costs figures were quoted.

On-peak \$2.64/kwh
 Off-peak \$1.67/kwh

At the time the rates were quoted the PSC felt they were too low, however, no upward adjustment appears to have been made since that time.

- d. Wisconsin Power and Light Company.

Buy-back (Appendix B) rates for 1980 were as follows:

On-peak \$4.8/kwh
 Off-peak \$1.75/kwh

As per a conversation with Jerry Albrecht of the PSC (6/26/85), 1980 cost avoidance rates were never filed or computed as they are today, however, the following is an approximation of avoided cost rates as estimated by Mr. Albrecht.

Assuming 1980 off-peak rate of \$1.75/kwh is reasonable for 1980 one can look at differentials between on-peak and off-peak rates in subsequent years for comparison.

1983 on-peak and off-peak rates for Wisconsin Power and Light at three transmission levels in cents per kwh.

	<u>transmission</u>	<u>distribution</u>	<u>secondary</u>
on-peak	3.61	3.72	3.87
off-peak	2.22	2.26	2.34

rates are quoted by Jerry Albrecht 6/26/85.

<u>Average rates</u>	<u>1983</u>	<u>1984</u>
On-peak	3.73	4.28
Off-peak	2.275	2.30

Average rate differential factor is 1.75
 *for 1984 rates Appendix B.

1980 estimated on-peak rates

$$1.75 \times (1.75) = 3.0625$$

e. From 1974 to 1983 prices for producers of electric power have increased 156 percent or 15.6 percent per year on average. See table below.

	<u>Price Index</u>									
<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	
163.1	193.4	207.6	232.9	250.6	270.2	321.6	367.2	406.5	417.9	

$$417.9 - 163.1 = 254.8$$

$$254.8/163.1 = 1.56$$

$$156/10 \text{ years} = 15.6\%$$

Source: Statistical Abstract of the United States 1985, 105th Edition, U.S. Department of Commerce, Bureau of Statistics, no. 783. Producer Price Indexes, for Selected Commodities: 1970 to 1984, p. 470.

On-Peak/Off-Peak Rates for
 WP&L and WPSC in Cents/kwh

	<u>1980 actual</u>		<u>1984 estimated</u>		<u>1984 actual</u>	
	<u>On-Peak</u>	<u>Off-Peak</u>	<u>On-Peak</u>	<u>Off-Peak</u>	<u>On-Peak</u>	<u>Off-Peak</u>
WPL	3.0625	1.75	4.97	2.84	4.28	2.30
WPSC	2.64	1.67	4.28	2.71	4.376	2.403

Calculation of 1984 estimates
 15.6 percent per year for approximately
 4 years = 62.4 percent increase
 See Appendix B for 1984 actual rates

Average On-Peak/Off-Peak
Rates in Cents/kwh

	<u>1980</u>		<u>1984 estimated</u>	
	<u>On-peak</u>	<u>Off-peak</u>	<u>On-peak</u>	<u>Off-peak</u>
Average Rates	2.981	1.593	4.84	2.58
Average Adjusted Rates	2.445		4.034	

Given the estimated rates for 1984 of WPL, WPSC, and average rates, it is the appraisor opinion that the rates being used to calculate 1980 revenues are reasonable.

- [6] Water sales are reported by Consolidated Water Power Company for the only year available, 1975, see Table 1.
- [7] Expenses as reported by WRPC for 1980 less real estate taxes and depreciation, see Table 2.
- [8] Average return on equity from selected statistics on Moody's Electric Utility Average, Moody's Utility Manual, 1984 p. a14, see Table 3.

Reported return on equity for 1980 of Wisconsin Public Service Corporation and Wisconsin Power and Light were 10.9 percent and 11.1 percent respectively. Moody's Utility Manual, 1984.

- [9] The next buyer would purchase subject to termination of the present license in 1998 with some element of uncertainty as to whether the Federal Energy Resource Commission would renew the license; there is no precedent for non-renewal relative to private citizens as compared to facilities utilizing Indian reservation land. Nevertheless, the appraiser has assumed a 50/50 probability of renewal and provided for recapture of 50 percent of capital in 18 years on straight line basis of 0.0278.
- [10] Average real estate tax rate of watershed townships in 1980, see Table 4.
- [11] See Table 5.
- [12] See Table 5.
- [13] See Table 4.

TABLE 1

WATER SALES AS REPORTED
BY CONSOLIDATED WATER
AND POWER COMPANY
1975

Report of Consolidated Water Power Company

for year ended Dec. 31, 1975

E-15

OTHER ELECTRIC OPERATING REVENUES (Accts. 450-456)	
Particulars (a)	\$ Amount (b)
<i>THIS SHEET INDICATES WATER SALES</i>	
450 Forfeited discounts	786
451 Miscellaneous service revenues	
Disconnect, reconnect, new service, and maintenance fees	125
Charge Wisconsin River Power Co. for general office expense	17,249
	17,374
453 Sales of water and water power	
Consolidated Papers, Inc. grinders - Wisconsin Rapids	103,943
- Biron	169,911
- Wisconsin River	167,411
Mekoosa Papers, Inc. - Centralia Headwater Control	23,090
Cranmoor Coop. - cranberry irrigation, Wisconsin Rapids	3,277
Biron Cranberry Co. - cranberry irrigation, Biron	2,093
Dempze Cranberry Co. - cranberry irrigation, Biron	647
Du Bay Cranberry Co. - cranberry irrigation, Biron	463
S.W. Mead Cranberry Co. - cranberry irrigation, Biron	255
Sorenson Cranberry Co. - cranberry irrigation, Biron	100
Dale L. Johnson Cranberry Co. - cranberry irrigation, Biron	611
	471,801
454 Rent from electric property	
Miscellaneous pole rents	2,328
Miscellaneous land rents	327
	2,655
456 Other electric revenue <i>(Amount the separate utility has derived?)</i>	788

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TABLE 2

WISCONSIN RIVER POWER COMPANY
WISCONSIN RAPIDS, WISCONSIN
STATEMENTS OF NET INCOME AND REINVESTED EARNINGS
FOR THE TWELVE MONTHS' PERIOD ENDED DECEMBER 31

	1981		1980
	Month Of December	Twelve Months' Period	Twelve Months' Period
Operating Revenues			
Sales of electric energy	\$ 142,500.00	\$ 2,490,000.00	\$ 2,208,000.00
Sales of water and other operating revenue	2,865.37	44,828.83	25,476.51
Total Operating Revenues	<u>145,365.37</u>	<u>2,534,828.83</u>	<u>2,233,476.51</u>
Operating Expenses And Taxes			
Operation	24,267.93	409,158.79	495,003.89
Maintenance	16,992.00	223,195.78	116,492.39
Administrative And General Expenses			
Management and supervision fees	3,082.15	114,292.15	99,617.00
Injuries and damages	1,039.10	31,459.66	36,874.03
Other administrative and general expenses	48,895.07	297,392.84	213,938.92
Depreciation	39,687.45	322,387.45	308,836.09
Taxes			
Federal and State income taxes*	14,180.05	68,652.61	29,739.00
Property taxes	55,845.58	801,645.58	790,762.86
Other taxes	1,550.86	15,381.37	19,542.77
Total Operating Deductions	<u>205,540.19</u>	<u>2,283,566.23</u>	<u>2,110,806.95</u>
Operating Income Or (Loss)	(60,174.82)	251,262.60	122,669.56
Other Income And Deductions (Net)**	(2,268.06)	(4,541.66)	15,254.50
Income Or (Loss) Before Interest Charges	<u>(62,442.88)</u>	<u>246,720.94</u>	<u>137,924.06</u>
Interest on notes payable to associated company	7,500.00	103,125.00	125,625.00
Other interest	-	13,030.66	745.89
Total Interest	<u>7,500.00</u>	<u>116,155.66</u>	<u>126,370.89</u>
Net Income Or (Loss)	<u>\$ (69,942.88)</u>	<u>130,565.28</u>	<u>11,553.17</u>
Reinvested Earnings, January 1		<u>1,228,905.59</u>	<u>1,217,352.42</u>
Reinvested Earnings, December 31		<u>\$ 1,359,470.87</u>	<u>\$ 1,228,905.59</u>

* Income tax expense has been increased by deferred investment tax credit of \$33,176.96 in 1981 and \$3,775.28 in 1980, and has been reduced by investment tax credit ratably restored to income of \$2,034.53 in 1981 and \$1,013.68 in 1980.

** Applicable taxes have been deducted.

TABLE 3

a14 A NATION-WIDE SURVEY OF PUBLIC UTILITY PROGRESS
SELECTED STATISTICS ON MOODY'S ELECTRIC UTILITY AVERAGE

Year	Earnings \$ per Share	AFUDC per Share	Dividend \$ per Share	Payout Ratio %	Book Value \$ per Share		Return on Equity %	Int. Cov. Incl. AFUDC	Int. Cov. excl. AFUDC	Debt %			Common & Surplus %	Inter-nal Cash \$ MIL
					Incl. def. taxes	Excl. def. taxes				Lg. Tm.	Shr. Tm.	Pfd. %		
1983	11.88	6.10	8.00	67.3	106.77	82.90	14.3	1.17	2.57	45.7	3.1	11.5	39.7	4,564.4
1982	10.90	6.11	7.64	70.1	104.43	82.77	13.2	2.49	1.92	46.8	3.5	11.7	38.0	4,643.6
1981	10.16	5.37	7.16	70.5	101.84	81.91	12.4	2.44	1.95	46.3	5.5	11.9	36.3	3,227.4
1980	8.98	5.03	6.67	74.3	102.49	83.82	10.7	2.39	1.89	46.6	4.7	12.7	36.2	3,205.3
1979	8.95	4.19	6.34	70.8	99.01	81.62	11.0	2.57	2.09	47.1	4.3	12.7	35.8	3,394.1
1978	8.59	3.21	5.98	69.6	94.77	80.11	10.7	2.94	2.53	47.6	2.9	12.9	36.6	2,855.8
1977	8.64	2.54	5.68	65.7	92.96	78.82	11.0	2.89	2.54	48.4	2.5	13.1	36.1	2,697.5
1976	8.15	2.57	5.25	64.4	89.52	76.94	10.6	2.75	2.41	49.5	2.9	12.9	34.7	2,487.4
1975	7.77	2.66	4.99	64.2	85.79	75.80	10.3	2.53	2.20	50.2	3.3	12.8	33.7	1,858.0
1974	7.63	2.74	4.83	63.3	79.94	73.23	10.4	2.51	2.16	50.0	5.0	12.7	32.3	1,550.8
1973	7.55	2.41	5.04	66.8	76.84	71.67	10.5	2.79	2.41	50.1	3.7	12.4	33.8	1,425.2
1972	7.73	2.34	4.92	63.6	75.05	70.41	11.0	2.86	2.58	50.6	3.2	12.4	33.8	1,248.1
1971	7.14	1.88	4.81	67.4	70.24	66.37	10.8	2.86	2.53	52.1	2.7	11.7	33.5	1,124.4
1970	6.89	1.48	4.73	68.7	67.75	64.09	10.8	2.98	2.69	52.7	3.1	10.9	33.3	993.4
1969	6.92	0.96	4.63	66.9	63.90	60.54	11.4	3.73	3.50	51.5	4.3	9.7	34.5	1,032.2
1968	6.67	0.68	4.58	68.7	60.97	57.94	11.5	4.25	4.06	52.1	2.3	9.9	35.7	1,004.3
1967	6.67	0.52	4.44	66.6	57.53	54.88	12.2	4.66	4.49	51.2	2.3	9.6	36.9	991.4
1966	6.30	0.34	4.18	66.3	54.53	52.23	12.1	5.10	4.97	51.2	1.6	9.3	37.9	941.9
1965	5.92	0.27	4.02	67.9	52.66	50.71	11.7	5.29	5.18	49.9	1.7	8.8	39.6	883.4
1964	5.41	0.22	3.68	68.0	50.69	48.98	11.1	5.30	5.20	50.7	0.8	8.8	39.7	833.4
1963	4.99	0.18	3.33	66.7	47.91	46.35	10.8	5.32	5.23	50.9	0.8	9.4	38.9	763.2
1962	4.73	0.24	3.07	64.9	44.88	44.37	10.7	5.33	5.22	51.6	0.5	10.0	37.9	702.4
1961	4.33	0.25	2.86	66.1	42.95	42.20	10.3	5.25	5.13	51.4	1.5	9.8	37.3	725.7
1960	4.12	0.27	2.74	66.5	41.20	40.25	10.2	5.25	5.11	51.7	1.1	10.1	37.1	674.8
1959	3.82	0.27	2.64	69.1	40.14	38.79	9.9	5.46	5.31	51.4	1.2	10.2	37.2	624.0
1958	3.63	0.37	2.57	70.8	38.24	37.21	9.8	5.47	5.26	51.6	1.4	10.6	36.4	580.0
1957	3.41	0.24	2.46	72.1	36.57	36.32	9.4	5.74	5.58	50.1	1.6	10.0	37.4	531.1
1956	3.35	0.12	2.37	70.7	34.65	34.53	9.7	6.38	6.29	48.5	1.7	11.7	38.1	511.2
1955	3.21	0.15	2.27	70.7	33.56	33.26	9.7	6.34	6.23	49.4	0.7	11.6	38.3	488.1

① Allowance for funds used during construction per year-end weighted share of common stock. ② Dividends per share divided by earnings per share. ③ Deferred taxes consists of deferred income taxes and deferred investment tax credits. ④ Consists of earnings per share divided by year-end book value per share including deferred income taxes. ⑤ Consists of net operating income plus federal and state income taxes, deferred income taxes, deferred investment tax credits and allowance for funds used during construction, divided by total interest charges. ⑥ Same as ⑤ but excluding allowance for funds used during construction. ⑦ Includes current maturities. ⑧ Consists of net income plus depreciation, deferred income taxes, deferred investment tax credits, less allowance for funds used during construction and dividends on preferred and common stock. ⑨ Consists of construction expenditures net of allowance for funds used during construction. ⑩ Year-end.

TABLE 4

MILL RATES -- 1980

=====

	EQUILILIZATION RATE	NET TAX RATE	NET TAX RATE BASED ON 100% OF VALUE

TOWN OF ARMENIA	0.2189	0.09005	0.01971
TOWN OF GERMANTOWN	0.6179	0.02801	0.01731
TOWN OF MONROE	0.339	0.04505	0.01527
TOWN OF NECEDAH	0.1626	0.10695	0.01739
TOWN OF QUINCY	0.3959	0.03754	0.01486
TOWN OF PORT EDWARDS	0.652	0.02510	0.01637
TOWN OF ROME	1.0151	0.02155	0.02188
TOWN OF SARATOGA	0.9755	0.01677	0.01636
TOWN OF STRONGS PRAIRIE	0.6545	0.02244	0.01469
			=====
AVERAGE			0.01709

ALLOCATION OF HISTORICAL VALUE

Historical Cost in Dollar Amounts (1948-1950)

	TOTAL DOLLARS	ARMENIA	GERMANTOWN	MONROE	NECEDAH	QUINCY	PORT EDWARDS	ROME	SARATOGA	STRONGS PRAIRIE
LAND AND LAND RIGHTS	3,700,000	654,900	669,700	928,700	136,900	340,400	62,900	388,500	88,800	429,200
STRUCTURES AND IMPROVEMENTS	700,810	357,413				343,397				
RESERVOIRS, DAMS, AND WATERWAYS	15,769,910	756,956	536,177	47,310	5,677,168	6,465,663				2,286,637
WATER WHEELS, TURBINES, AND GENERATORS	1,234,010				623,175	610,835				
ACCESSORY ELECTRICAL EQUIPMENT	173,510				79,815	93,695				
MISCELLANEOUS POWER PLANT EQUIPMENT	20,330				12,401	7,929				
ROADS, RAILROADS, AND BRIDGES	42,860				23,573	19,287				
TRANSMISSION PLANT	344,110				158,291	185,819				
GENERAL PLANT	14,460				13,737	723				
TOTAL COST	\$22,000,000	1,769,269	1,205,877	976,010	6,725,059	8,067,748	62,900	388,500	88,800	2,715,537

Historical Cost in Percentage Amounts (1948-1950)

	PERCENT OF TOTAL COST	ARMENIA	GERMANTOWN	MONROE	NECEDAH	QUINCY	PORT EDWARDS	ROME	SARATOGA	STRONGS PRAIRIE
LAND AND LAND RIGHTS	0.1682	0.177	0.181	0.251	0.037	0.092	0.017	0.105	0.024	0.116
STRUCTURES AND IMPROVEMENTS	0.0319	0.510				0.490				
RESERVOIRS, DAMS, AND WATERWAYS	0.7168	0.048	0.034	0.003	0.360	0.410				0.145
WATER WHEELS, TURBINES, AND GENERATORS	0.0561				0.505	0.495				
ACCESSORY ELECTRICAL EQUIPMENT	0.0079				0.460	0.540				
MISCELLANEOUS POWER PLANT EQUIPMENT	0.0009				0.610	0.390				
ROADS, RAILROADS, AND BRIDGES	0.0019				0.550	0.450				
TRANSMISSION PLANT	0.0156				0.460	0.540				
GENERAL PLANT	0.0007				0.950	0.050				
TOTAL ALLOCATION	1.0000									

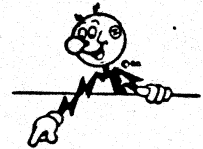
Southwest Research, Inc.

TABLE 5

APPENDIX A
BASIC DESCRIPTIVE DATA ON
LOCATION, CAPACITY, AND WATER RESOUCE BASE OF
CASTLE ROCK-PETENWELL HYDROELECTRIC SYSTEM



Some Interesting Facts About The Projects



	<u>PETENWELL</u>	<u>CASTLE ROCK</u>
Estimated cost complete	\$9,400,000	\$7,600,000
Operation scheduled	Dec. 1, 1949	June 1, 1950
Plant capacity	Kilowatts 20,000	15,000
Estimated annual generation	Kilowatt-hours 102,000,000	75,000,000
Generating units	Number 4	5
Spillway gates in dam	Number 16	18
Operating head	Feet 42	30
Lake area	Square miles 36	26
Lands required	Acres 32,300	23,300
Length of:		
Concrete dam and powerhouse	Feet 701	831
Earth dam	Feet 8500	1200
Earth dikes	Miles 7.5	3.75
Lake	Miles 15	9
Concrete in dam and powerhouse	Cubic yards 60,500	50,000
Earth fill in dam and dikes	Cubic yards 3,440,000	1,100,000
Earth excavation	Cubic yards 297,500	291,000
Rock for riprap	Cubic yards 194,600	93,000
Nearest dam - upstream	Air miles 19 to Nekoosa	14 to Petenwell
Nearest dam - downstream	Air miles 14 to Castle Rock	19 to Wis. Dells

WE APPRECIATE YOUR VISIT AND HOPE YOU'LL COME AGAIN

WISCONSIN RIVER POWER COMPANY

AND ASSOCIATED COMPANIES
 CONSOLIDATED WATER POWER & PAPER COMPANY
 WISCONSIN POWER AND LIGHT COMPANY
 WISCONSIN PUBLIC SERVICE CORPORATION

PLEASE BE CAREFUL — HELP US AVOID ACCIDENTS
 ON CONSTRUCTION THERE IS DANGER, ESPECIALLY WHERE EQUIPMENT IS WORKING. FOR
 YOUR OWN SAFETY KEEP WITHIN THE LIMITS OF THE PLACES MARKED FOR VISITORS

CASTLE ROCK-PETENWELL PROJECT
5/6/85

1. The records were examined to establish average kilowatt hours generated. The average kilowatt hour is directly related to the average flow of water. The average water flow is the basis of the wealth of the system and that water flow is converted to kilowatt hours, which has marketability.
2. All water flow records are taken from U.S. Geological Survey Water Resources data for a water year starting in October and ending in September of the year of records. (September 1961 started October 1960.)
3. All water flow records used in this study are from January through December to conform to the method of reporting of kilowatt hours.
4. Water flow into the system is measured at Wisconsin Rapids and water flow out of the system is measured at Wisconsin Dells.
5. The Yellow River adds to the Castle Rock pond. The average input is 150 cubic feet per second (cfs) which is too small to examine.
6. The Lemonweir River (330 cfs) enters the Wisconsin River below Castle Rock and above Wisconsin Dells and adds to the totals at the Dells. It does not effect the establishment of average flow.
7. The average flow years occurred in 1961, 1962, 1967, and 1975, and the kilowatt hours of those years were examined.
8. The yearly records of the Consolidated Water Power Company, the Wisconsin Public Service Co., and the Wisconsin Power and Light Co. for years 1961, 1962, 1967, 1973, 1975, and 1976, were examined and recorded.
9. Petenwell system average flow is 4,800 to 5,000 cfs. The average flow through Castle Rock is 6,600 to 6,800 cfs.

Source: U.S. Geological Survey, data gathered by Bertil W. Johnson, P.E.

YEAR	AVERAGE FLOW	CWPC KWH X 1000	TOTAL ALL 3 KWH X 1000	WPL KWH X 1000	WPSC KWH X 1000
1961	Average	65556.46	195622.00	63447.88	66618.00
1962	Average	69615.96	208852.00	69623.88	69612.00
1967	Average High	66212.00	199813.00	68566.00	65035.00
1975	Average Low	65337.00	196483.00	66282.00	64864.00
	Total (rounded)	266721		267920	266129
	Average (rounded)	66680		66980	66532

TOTAL PETENWELL AND CASTLE ROCK (SUM)

1961	195662
1962	208852
1967	199813
1975	196484
Total	800811
Average (rounded)	200203

COMPARISON

1973	High	80000	82060	77797
	Total	239857		
1976	Low	53971	55468	53223
	Total	162662		

Source: U.S. Geological Survey Water Resources Data

DATA ON ALTERNATIVE POWER COSTS

(A) COST OF POWER AT THE CASTLE ROCK/PETENWELL PROJECT.

(1) Kwh Generated: Public Service Commission (PSC) Bulletin No. 46 gives the following data on kwh generated at Castle Rock/Petenwell:

<u>YEAR</u>	<u>NET Kwh GENERATED</u>
1979	236,762,000
1978	243,285,000
1977	149,670,000

(2) Expense of Generation: Financial Statements filed by Wisconsin River Power Company give the following expenses:

<u>YEAR</u>	<u>EXPENSES</u>
1979	\$1,942,807.23
1978	\$1,809,444.81
1977	\$1,659,050.67

(3) Average Cost per kwh: The average cost per kwh is obtained by dividing the expense by the kwh generated:

<u>YEAR</u>	<u>AVERAGE COST per Kwh</u>
1979	.82¢
1978	.74¢
1977	1.11¢

(B) COST OF POWER FOR CLASS A and B MUNICIPAL UTILITIES

(1) PSC Bulletin No. 18 gives the following data on the average cost of purchased energy for Wisconsin's 14 class A and B municipal utilities:

<u>YEAR</u>	<u>COST PER Kwh</u>
1979	2.40¢
1978	2.23¢
1977	2.10¢

(2) Difference in Costs: The difference in the costs of power to Class A and B Municipal Utilities and the cost of the Castle Rock/Petenwell power can be calculated as follows:

(a) Year - 1979

Average municipal cost	2.40¢
less (Average C.R./Petenwell cost)	(.82)¢
<u>Difference per kwh</u>	<u>1.58¢</u>
 x Net kwh generated	 236,762,000
	<u>\$3,740,839.60*</u>

* Difference between municipal purchased power cost and Castle Rock/Petenwell cost for equivalent amount of power.

(b) Year - 1978

Municipal Cost	2.23¢
Castle Rock/Petenwell Cost	(.74)¢
<u>Difference per kwh</u>	<u>1.49¢</u>
 x Net kwh generated	 243,285,000
<u>Total difference in costs</u>	<u>\$3,624,946.50</u>

(c) Year - 1977

Municipal cost	2.10¢
Castle Rock/Petenwell Cost	(1.11)¢
<u>Difference per kwh</u>	<u>.99¢</u>
 x Net kwh generated	 149,670,000
<u>Total Difference in Costs</u>	<u>\$1,481,733.00</u>

(C) COST OF POWER FOR CLASS C MUNICIPAL UTILITIES

(1) PSC Bulletin No. 18 gives the following data on the average cost of purchased energy for Wisconsin 50 Class C municipal utilities:

<u>YEAR</u>	<u>COST PER Kwh</u>
1979	2.73¢
1978	2.57¢
1977	2.27¢

(2) The difference in costs to the municipals can be calculated:

(a) Year - 1979

Average municipal cost	2.73¢
Castle Rock/Petenwell Cost	(.82)¢
<u>Difference per kwh</u>	<u>1.91¢</u>
x Net kwh generated	236,762,000
<u>Total Difference in Costs</u>	<u>\$4,522,154.20</u>

(b) Year - 1978

Average municipal cost	2.57¢
Castle Rock/Petenwell cost	(.74)¢
<u>Difference per kwh</u>	<u>1.83¢</u>
x Net kwh generated	243,285,000
<u>Total Difference in Costs</u>	<u>\$4,452,115.50</u>

(c) Year - 1977

Average municipal cost	2.27¢
Castle Rock/Petenwell cost	(1.11)¢
<u>Difference per kwh</u>	<u>1.16¢</u>
x Net kwh generated	149,670,000
<u>Total Difference in Costs</u>	<u>\$1,736,172.00</u>

(D) COST OF POWER TO RURAL ELECTRIC COOPERATIVES

(1) PSC Bulletin No. 18 gives the following data on the cost of purchased power to five (Adams-Marquette, Central Wisconsin, Columbus, Rock County, Waushara) rural electric cooperatives. (REC's):

<u>YEAR</u>	<u>COST PER Kwh</u>
1979	2.61¢
1978	2.90¢
1977	2.21¢

(2) The difference in costs to the REC's can be calculated:

(a) Year - 1979

Average REC cost	2.61¢
Castle Rock/Petenwell cost	(.82)¢
<u>Difference per kwh</u>	<u>1.79¢</u>
x Net kwh generated	236,762,000
<u>Total Difference in Costs</u>	<u>\$4,238,039.80</u>

(b) Year - 1978

Average REC cost	2.90¢
Castle Rock/Petenwell cost	(.74)¢
<u>Difference per kwh</u>	<u>2.16¢</u>
x Net kwh generated	243,285,000
<u>Total Difference in Costs</u>	<u>\$5,245,946.00</u>

(c) Year - 1977

Average REC cost	2.21¢
Castle Rock/Petenwell cost	(1.11)¢
<u>Difference per kwh</u>	<u>1.10¢</u>
x Net kwh generated	149,670,000
<u>Total Difference in Costs</u>	<u>\$1,646,370.00</u>

(E) COSTS OF POWER TO INDUSTRIAL CUSTOMERS

(1) Cost to Large Industrial Customer of Wisconsin Power & Light Company: For a large industrial customer (1000 kw demand, 400,000 kwh/month) of Wisconsin Power & Light, PSC Bulletin No. 9 gives the following cost per kwh as of January 1 of each year:

<u>YEAR</u>	<u>COST PER Kwh</u>
1979	3.14¢
1978	2.62¢
1977	2.56¢

(2) Difference in Costs: The difference in costs can be calculated as follows:

(a) Year - 1979

Cost to Industry	3.14¢
Castle Rock/Petenwell Cost	(.82)¢
<u>Difference per kwh</u>	<u>2.32¢</u>

x Net kwh generated	236,762,000
<u>Total Difference</u>	<u>\$5,492,878.40</u>

(b) Year - 1978

Cost to Industry	2.62¢
Castle Rock/Petenwell Cost	(.74)¢
<u>Difference per kwh</u>	<u>1.88¢</u>

x Net kwh generated	243,285,000
<u>Total Difference</u>	<u>\$4,573,758.00</u>

(c) Year - 1977

Cost to Industry	2.56¢
Castle Rock/Petenwell Cost	(1.11)¢
<u>Difference per kwh</u>	<u>1.45¢</u>

x Net kwh generated	149,670,000
<u>Total Difference</u>	<u>\$2,170,215.00</u>

(3) Cost to Large Industrial Customer of Wisconsin Public Service Corporation: For a large industrial customer (1000 kw demand, 400,000 kwh per month) of Wisconsin Public Service Corporation, PSC Bulletin No. 9 gives the following costs per kwh as of January 1 of each year (Schedule R-1, winter rate).

<u>YEAR</u>	<u>COST PER Kwh</u>
1979	3.17¢
1978	2.83¢
1977	2.72¢

(4) Difference in Costs:
be calculated as follows:

The difference in costs can

(a) Year - 1979

Industry Cost	3.17¢
Castle Rock/Petenwell Cost	(.82)¢
<u>Difference per kwh</u>	<u>2.35¢</u>

x Net kwh generated	236,762,000
<u>Total Difference</u>	<u>\$5,563,907.00</u>

(b) Year - 1978

Industry Cost	2.83¢
Castle Rock/Petenwell Cost	(.74)¢
<u>Difference per kwh</u>	<u>2.09¢</u>

x Net kwh generated	243,285,000
<u>Total Difference</u>	<u>\$5,084,656.50</u>

(c) Year - 1977

Industry Cost	2.72¢
Castle Rock/Petenwell Cost	(1.11)¢
<u>Difference per kwh</u>	<u>1.61¢</u>

x Net kwh generated	149,670,000
<u>Total Difference</u>	<u>\$2,409,687.00</u>

APPENDIX B

REPRODUCTION OF PARALLEL GENERATION OR AVOIDED COST RATE FILINGS FOR
CENTRAL WISCONSIN POWER COMPANIES IN 1980

ELECTRIC VOLUME 1

PARALLEL GENERATION

Rate Schedule Pg-1

Effective in: All territory served.

AVAILABILITY

Available to customers with their own electric generation facilities who want to connect such facilities in parallel with the Company's system and whose facilities are approved by the Company. Customers with Company-approved parallel generation facilities may interconnect with the Company's grid even if they do not elect to receive service under this tariff.

RATE

A. The Company shall purchase all quantities of surplus electric energy received from the customer's facilities during each month at the following rates:

	Billing Periods	
	Winter	Summer
All on-peak kwh, per kwh	2.22¢	2.75¢
All off-peak kwh, per kwh	1.50¢	1.50¢

3. The customer shall pay the appropriate fixed charge each month as follows:

1. Single-phase - \$3.50 - \$7.00 per month
2. Three-phase - \$4.75 - \$9.00 per month
3. For customers with a total load in excess of 200 kW, the Company shall enter into individual agreements.

PRICING PERIOD DEFINITIONS

Summer Season - Commences with the first scheduled meter reading on or after June 16 and terminates following the fourth scheduled meter reading thereafter (approximately 120 days).

Winter Season - All times of the year other than the defined summer season.

On-peak Periods - 10:00 a.m. through 9:00 p.m.; Monday, Tuesday, Wednesday, Thursday, and Friday, excluding holidays.

Off-peak Periods - 12:00 midnight through 10:00 a.m. and 9:00 p.m. through 12:00 midnight; Monday, Tuesday, Wednesday, Thursday, Friday, plus all day Saturday, Sunday, and holidays.

Issued: March 6, 1980

Next Page is Sheet No. E 23.01

Effective: March 11, 1980

PARALLEL GENERATION

Effective In All Territories served by the Company.

Availability Available to any single or three-phase electric service customer who generates electrical energy in excess of their total energy requirements.

Customers with electrical generation who do not desire to sell electrical energy to Company may interconnect with Company's system but will not receive charges or credits under the Parallel Generation rate. Customers must, however, be in compliance with the Company's General Rules for Parallel Generation, Schedule PGX-1.

Rate

For Generating Facilities Rated At:

20 kW or less

Customer Charge \$3.00 per month

Customer Credit

Energy credit - kWh's delivered to Company

All on-peak kWh per month @ 1.84¢ per kWh

All off-peak kWh per month @ 1.14¢ per kWh

21 kW to 500 kW

Customer Charge \$3.00 per month

Customer Credit

Capacity credit* \$4.00 per average kW

Energy credit** - kWh's delivered to Company

All on-peak kWh per month @ 1.60¢ per kWh

All off-peak kWh per month @ 1.14¢ per kWh

*The NSP system currently has or is committed to an adequate supply of capacity to meet its customers estimated requirements through 1986. While this temporary condition exists, the Company will not pay a capacity credit for parallel generation.

**When NSP is not paying a capacity credit the on-peak energy credit will be 1.84¢ per kWh.

(continued)

ISSUED May 1, 1980

Public Service Commission of Wisconsin

WISCONSIN PUBLIC SERVICE CORPORATION

P.S.C.V. Volume No. 6

Replaces
Amendment

Original
550

Sheet No. 6.60
Sheet No.
Schedule PG-3

Parallel Generation - Firm Purchase By WPSC

Electric

EFFECTIVE IN All Territory Served.

AVAILABILITY To customers contracting for electric service, generating electrical energy and desiring to sell firm electrical energy and capacity to the Company.

MONTHLY RATE

FIXED CHARGE

SINGLE PHASE \$2.50/Month

THREE PHASE \$6.00/Month

CHARGES FOR DELIVERIES FROM COMPANY

Deliveries from the Company to the Customer shall be billed in accordance with the standard applicable rate schedules of the Company.

ENERGY CREDIT (Deliveries to Company)

On-Peak All Kwh at \$.0185/Kwh
8:00 A.M. to 10:00 P.M. Daily

Off-Peak All Kwh at \$.0132/Kwh
10:00 P.M. to 8:00 A.M. Daily

DEMAND CREDIT (Deliveries to Company)

The demand credit shall be calculated for each installation to reflect the degree of firmness associated with that specific generating facility and shall reflect the following criteria:

1. The availability of capacity during system daily and seasonal peak periods, including:
 - a) The ability of the Utility to dispatch the generator.
 - b) The ability and willingness to provide capacity during system emergencies.
 - c) The length, frequency and scheduling flexibility of scheduled maintenance.

Issued April 16, 1980

Effective April 11, 1980



E07/80-DH

PARALLEL GENERATION - (UNDER 200 KW)

1. Effective In

All territories served by the Company.

2. Availability

Available for all single phase and three phase customers where a part or all of the electrical requirements of the customer are supplied by the customer's generation facilities, where such facilities are rated at less than 200 KW, where such facilities are connected in parallel with the company facilities, and where such facilities are approved by the Company.

3. Rate

A. For customer with generation facilities rated at less than 200 KW.

1. The customer shall pay a fixed charge of \$3.00 per month.

2. The Company shall pay capacity and energy credits for all quantities of electricity received from the customer's facilities during each billing period at the following rates:

4.80¢ per KWH on-peak

1.75¢ per KWH off-peak

4. Pricing Periods

Unless specified to the contrary in writing by the Company to any customer using this schedule:

A. On-peak period - 8:00 a.m. to 10:00 p.m. Monday through Friday. H

B. Off-peak period - 10:00 p.m. to 8:00 a.m. Monday through Friday, and all day Saturday and Sunday.

5. Metering and Service Facilities

The customer shall furnish, install and wire the necessary service entrance equipment, meter sockets, meter enclosure cabinets, or meter connection cabinets that may be required by the Company to properly meter on and off-peak usage.

The customer shall pay for the cost of rebuilding any company facilities to provide adequate capacity for the parallel generation system.

The Company will furnish and install appropriate metering to measure energy flow.

Issued: 3-5-80

Effective: 2-22-80

PSCB Authorization: Letter 6680 LTM/TBN
dated 2-22-80

Class of Service Firm Surplus Energy Purchases By Wisconsin Electric Electric

Effective in All Areas Served

AVAILABILITY

To customers contracting for electrical service from Wisconsin Electric Power Company and who also generate firm electrical energy in excess of their own need and desire to sell it to Wisconsin Electric Power Company. For the purposes of this schedule, company is defined as Wisconsin Electric Power Company and customer is defined as the person or corporate entity desiring to sell excess electrical energy to the company.

RATE

<u>Energy per kWh</u>	<u>Billing Periods</u>	
	<u>July-October</u>	<u>November-June</u>
On-Peak Energy (a)	3.65¢	3.45¢
Off-Peak Energy (b)	1.45	1.45

- (a) On-peak energy is the energy in kilowatthours delivered to the company between the hours specified in the Time-of-Use rate schedule that corresponds to the customers class of service (for farm customers, hours specified in Schedule Rg 2 shall apply).
- (b) Off-peak energy is the energy in kilowatthours delivered to the company during all hours other than on-peak hours.

CONDITIONS OF PURCHASE

See Sheets 41.2 and 41.3.

Issued 4-18-80 Effective on bills for service furnished on or after 4-11-80

Issued under the authority of letter of the Public Service Commission of Wisconsin. Dated 4-11 19 80

Issued By N. A. Ricci Senior Vice President Milwaukee, WI

FURPA COMPLIANCE.
5/6/85

Docket No. 6690-UR-20
Exhibit _____ (WRD-3)

ANALYSIS OF AVOIDED COSTS

1. Avoided Capacity Cost (Peaker Method from 05-ER-12)

Capital Cost	\$288.40	<i>PER KW - PEAKING GAS TURBINE</i>
x Levelized Carrying Cost	.1857	
<hr/>		
Annualized Carrying Cost	\$53.56	
+ Fixed O&M	\$2.17	
<hr/>		
Cost/kW	\$55.73	
x Reserve Factor	1.15	
x Reliability	.75	
x PV Factor	.7441	<i>WPL</i>
<hr/>		
Adjusted Cost/kW	\$34.37	<i>30.50</i>

2. Wisconsin Public Service Corporation Marginal Energy Costs: 1985 \$
On-Peak Hours: 6:00am - 10:00pm weekdays
excluding holidays

Cents/kWh		On-Peak	Off-Peak
=====		-----	-----
	<i>ACTUAL</i>		
1985	<i>BASE</i>	3.000	2.170
1986		3.030	2.220
1987		3.240	2.260
1988		3.390	2.310
1989		3.550	2.350
		-----	-----
Average 1985-1989		3.242	2.262

3. On-Peak Energy Rate:

	Transmission (> 15 kV)	Primary (6kV-15kV)	Secondary (< 6 kV)
	-----	-----	-----
Marginal Energy Costs	\$.0324	\$.0324	\$.0324
x Loss Factor	1.0443	1.0655	1.0918
<hr/>			
Cost at Generator	\$.0339	\$.0345	\$.0354
Capacity Cost	<i>WPL - 3570</i> \$34.37	\$34.37	\$34.37
/ On-Peak Hours	4000	4000	4000
x Loss Factor	<i>avoid using generator</i> 1.0443	1.0655	1.0918
<hr/>			
Capacity Cost/kWh	\$.0090	\$.0092	\$.0094
Total On-Peak Rate	\$.0428	\$.0437	\$.0448

4. Off-Peak Energy Rate:

Marginal Energy Costs	\$.0226	\$.0226	\$.0226
x Loss Factor	1.0406	1.0617	1.0879
<hr/>			
Total Off-Peak Rate	\$.0235	\$.0240	\$.0246

PURPA COMPLIANCE.

5-6-85

WISCONSIN POWER & LIGHT COMPANY

REVISION TO JOHN L. WALKER EXHIBIT 6 SCHEDULE 21
DOCKET 6680-UR-12

1
.0185
.0480
.0665
.0330

1. CAPACITY COST:

COST/KW	\$47.52	
X RESERVE FACTOR	1.15	
X RELIABILITY	0.75	
X FV FACTOR	0.7441	

ADJUSTED COST/KW	\$30.50	WPS 34.37

2. REVISED EASTERN WISCONSIN UTILITIES MARGINAL ENERGY COSTS:
(UPDATED TO ADVANCE PLAN 4, 8 AM TO 10 PM, 1984 \$)

CENTS/KWH =====	+-----ON PEAK PERIOD-----+			+-----OFF PEAK PERIOD-----+		
	SUMMER (4 MO)	WINTER (8 MO)	AVERAGE	SUMMER (4 MO)	WINTER (8 MO)	AVERAGE
1984	3.28	4.09	3.82	1.84	2.13	2.03
1985	2.75	3.12	3.00	1.90	2.09	2.03
1986	2.65	2.90	2.82	1.94	2.14	2.07
1987	2.78	3.17	3.04	2.01	2.23	2.16
1988	2.93	3.31	3.18	2.06	2.28	2.21
1989	3.16	3.69	3.51	2.16	2.37	2.30
1984-88 AVERAGE			3.172			2.100
1985-89 AVERAGE			3.110			2.154

3. ON PEAK ENERGY RATE:

	TRANSM	DISTRIB	SECONDARY
MARGINAL ENERGY COST	\$0.0311	\$0.0311	\$0.0311
X LOSS FACTOR	1.0428	1.073	1.1161
COST AT GENERATOR	\$0.0324	\$0.0334	\$0.0347
WPS-4000			
CAPACITY COST	\$30.50	\$30.50	\$30.50
X ON PEAK HOURS	3570	3570	3570
X LOSS FACTOR	1.0373	1.0776	1.1481
CAPACITY COST/KWH	\$0.0089	\$0.0092	\$0.0098
TOTAL ON PEAK RATE	\$0.0413	\$0.0426	\$0.0445

4. OFF PEAK ENERGY RATE:

MARGINAL ENERGY COST	\$0.0215	\$0.0215	\$0.0215
X LOSS FACTOR	1.0406	1.0616	1.1001
TOTAL OFF PEAK RATE	\$0.0224	\$0.0229	\$0.0237

APPENDIX C
A COMPARISON OF COSTS OF PURCHASED ENERGY
TO MUNICIPALITIES, SMALL PRIVATELY-OWNED UTILITIES
AND SELECTED RURAL ELECTRIC COOPERATIVES IN WISCONSIN

1980

A COMPARISON OF COSTS OF PURCHASED ENERGY
TO MUNICIPALITIES, SMALL PRIVATELY-OWNED UTILITIES
AND SELECTED RURAL ELECTRIC COOPERATIVES IN WISCONSIN
1980

FILE COPY

PUBLIC SERVICE COMMISSION OF WISCONSIN
Accounts and Finance Division
Bulletin No. 18
October, 1981

FOREWORD

This bulletin summarizes and compares per-kilowatt-hour costs of purchased energy for municipally-owned electric utilities, small privately-owned electric utilities and for selected rural electric cooperatives operating in Wisconsin.

Tables 1 and 2 compare average per-kilowatt-hour prices received by vendors for sales of wholesale electricity for 1980 and 1979. The prices given here are based only on sales to those utilities and cooperatives included in this bulletin. Tables 3 through 5 contain individual company detail for the various classes of municipal utilities. Tables 5 and 6 present similar data for small privately-owned utilities and rural electric cooperatives.

Averages and ranges of energy costs per kilowatt-hour to the various classes of purchasers are shown below. Statistics for 1979 are also given for comparison.

	<u>Average Cost Per kWh</u>		<u>Range in Cost per kWh</u>	
	<u>1980</u>	<u>1979</u>	<u>1980</u>	<u>1979</u>
Municipal Utilities				
Class A and B	2.66¢	2.43¢	2.06¢ - 3.27¢	2.02¢ - 3.85¢
Class C	2.90	2.73	2.02 - 3.47	2.00 - 3.34
Class D	2.95	2.90	2.41 - 3.75	2.06 - 3.51
Small Private Utilities	3.19	2.94	3.06 - 3.38	2.82 - 3.33
Rural Cooperatives	2.68	2.61	2.63 - 2.78	2.52 - 2.76

Purchased energy costs shown above and in the remaining tables are taken from annual reports filed with this commission. Accordingly, reported costs reflect interim or final rates as authorized by the FERC during the reporting period net of power cost refunds credited to purchased power. Any comments or suggestions regarding this bulletin should be directed to the commission's Accounts & Finance Division.

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TABLE 1

AVERAGE PRICE RECEIVED FOR WHOLESALE ENERGY BY VENDOR
1980

VENDOR	MUNICIPALLY OWNED UTILITIES						SMALL PRIVATELY OWNED UTILITIES		RURAL ELECTRIC COOPERATIVES	
	CLASS AB		CLASS C		CLASS D		CENTS PER KWH	NO. OF UTILITIES	CENTS PER KWH	NO. OF UTILITIES
	CENTS PER KWH	NO. OF UTILITIES	CENTS PER KWH	NO. OF UTILITIES	CENTS PER KWH	NO. OF UTILITIES				
THILMANY PULP & PAPER COMPANY	2.70	1								
BARRON ELECTRIC COOPERATIVE			2.72	2						
DAIRYLAND POWER COOPERATIVE			3.47	1						
GRANT ELECTRIC COOPERATIVE			2.93	1						
JACKSON ELECTRIC COOPERATIVE					2.55	1				
KAUKAUNA MUN WATER & ELECTRIC UTIL	2.06	1			2.41	1				
LAFAYETTE ELECTRIC COOPERATIVE					2.51	1				
LAKE SUPERIOR DISTRICT POWER COMPANY			2.95	1			3.08	1		
MENASHA ELECTRIC & WATER UTILITY ^{1/}	2.70	1								
NORTHERN STATES POWER COMPANY			2.56	9	2.67	2				
NORTHWESTERN WISCONSIN ELECTRIC CO					3.45	1				
DAKDALE ELECTRIC COOP - LA VALLE			2.22	2						
PIERCE-PEPIN ELECTRIC COOPERATIVE			2.37	1						
PIONEER POWER AND LIGHT COMPANY							3.38	1		
SUPERIOR WATER LIGHT AND POWER CO							3.17	1		
TREMPELEAU ELECTRIC COOPERATIVE			2.39	1						
VERNON ELECTRIC COOPERATIVE					2.87	3				
WISCONSIN ELECTRIC POWER COMPANY	2.58	4	2.83	12						
WISCONSIN POWER AND LIGHT COMPANY	3.12	4	3.15	26	3.33	3	3.21	2	2.68	5
WISCONSIN PUBLIC SERVICE CORPORATION	2.59	5	3.02	3	3.20	1				
MEANS AND TOTALS	2.66	16	2.90	59	2.95	13	3.19	5	2.68	5

^{1/} Menasha sold to Kaukauna which also buys from Wisconsin Electric Power Company and Thilmany Pulp Paper Company.

TABLE 2
AVERAGE PRICE RECEIVED FOR WHOLESALE ENERGY BY VENDOR
1979

VENDOR	MUNICIPALLY OWNED UTILITIES						SMALL PRIVATELY OWNED UTILITIES		RURAL ELECTRIC COOPERATIVES	
	CLASS AB		CLASS C		CLASS D		CENTS PER KWH	NO. OF UTILITIES	CENTS PER KWH	NO. OF UTILITIES
	CENTS PER KWH	NO. OF UTILITIES	CENTS PER KWH	NO. OF UTILITIES	CENTS PER KWH	NO. OF UTILITIES				
BARRON ELECTRIC COOPERATIVE		0	2.67	2		0		0		0
DAIRYLAND POWER COOPERATIVE		0	2.64	1		0	2.82	1		0
GRANT ELECTRIC COOPERATIVE		0	2.85	1		0		0		0
JACKSON ELECTRIC COOPERATIVE		0		0	3.49	1		0		0
KAUKAUNA MUN WATER & ELECTRIC UTIL	2.06	1		0	2.06	1		0		0
LAFAYETTE ELECTRIC COOPERATIVE		0		0	2.72	1		0		0
LAKE SUPERIOR DISTRICT POWER COMPANY		0	2.92	1		0	3.17	1		0
MENASHA ELECTRIC & WATER UTILITY ^{1/}	3.85	1		0		0		0		0
NEW LISBON MUN WATER & ELECTRIC UTIL		0		0		0	16.65	1		0
NORTHERN STATES POWER COMPANY		0	2.23	9	2.34	2		0		0
NORTHWESTERN WISCONSIN ELECTRIC CO		0		0	3.08	1		0		0
OAKDALE ELECTRIC COOP - LA VALLE		0	2.47	2		0		0		0
PIERCE-PEPIN ELECTRIC COOPERATIVE		0	2.42	1		0		0		0
PIONEER POWER AND LIGHT COMPANY		0		0		0	3.33	1		0
SUPERIOR WATER LIGHT AND POWER CO		0		0		0	2.87	1		0
TREMPELEAU ELECTRIC COOPERATIVE		0	2.63	1		0		0		0
VERNON ELECTRIC COOPERATIVE		0		0	2.87	3		0		0
WISCONSIN ELECTRIC POWER COMPANY	2.20	4	2.55	12		0		0		0
WISCONSIN POWER AND LIGHT COMPANY	3.03	4	3.05	26	3.25	3	3.12	2	2.61	5
WISCONSIN PUBLIC SERVICE CORPORATION	2.44	5	3.13	3	3.38	1		0		0
MEANS AND TOTALS	2.43	15	2.73	59	2.90	13	2.94	7	2.61	5

^{1/} Menasha sold to Kaukauna which also bought energy from Wisconsin Electric Power Company and Thilmany Pulp Paper Company

TABLE 3
 COST OF ENERGY PURCHASED BY
 CLASS A AND B MUNICIPAL ELECTRIC UTILITIES
 1980

UTILITY	VENDOR	THOUSANDS OF KWH PURCHASED	TOTAL COST	15 MIN. MAXIMUM DEMAND	LOAD FACTOR	AVERAGE COST PER KWH	
						1980	1979
CEDARBURG LIGHT AND WATER COMMISSION ^{1/}	WISCONSIN ELECTRIC POWER COMPANY	67,579	\$ 1,811,423	11,344	68.0	2.68	2.34
KAUKAUNA MUN WATER & ELECTRIC UTIL ^{1/}	MENASHA ELECTRIC & WATER UTILITY	2,936	79,179	9,000	3.7	2.70	3.85
KAUKAUNA MUN WATER & ELECTRIC UTIL	THILMANY PULP & PAPER COMPANY	2,304	62,136	10,000	2.6	2.70	
KAUKAUNA MUN WATER & ELECTRIC UTIL	WISCONSIN ELECTRIC POWER COMPANY	<u>434,122</u>	<u>10,588,686</u>	<u>60,000</u>	<u>68.8</u>	<u>2.44</u>	<u>2.02</u>
	TOTAL	439,362	10,730,001	2/	2/	2.44	2.04
MANITOWOC PUBLIC UTILITY COMMISSION ^{1/}	WISCONSIN PUBLIC SERVICE CORPORATION	202,394	4,443,347	36,000	64.2	2.20	2.07
MARSHFIELD WATER AND ELECTRIC DEPT ^{1/}	WISCONSIN PUBLIC SERVICE CORPORATION	154,502	3,919,394	37,100	47.5	2.54	2.15
MENASHA ELECTRIC & WATER UTILITY ^{1/}	KAUKAUNA MUN WATER & ELECTRIC UTIL	68,831	1,414,848	21,800	36.0	2.06	2.06
OCONOMOWOC UTILITIES	WISCONSIN ELECTRIC POWER COMPANY	111,187	3,137,550	20,934	60.6	2.82	2.47
PLYMOUTH UTILITIES	WISCONSIN POWER AND LIGHT COMPANY	103,944	3,176,019	18,408	64.5	3.06	2.97
SHAMANO MUN WATER & ELECTRIC UTILITY	WISCONSIN ELECTRIC POWER COMPANY	102,736	2,905,361	18,012	65.1	2.83	2.56
STOUGHTON MUNICIPAL ELECTRIC UTILITY	WISCONSIN POWER AND LIGHT COMPANY	70,979	2,193,693	14,904	54.4	3.09	3.02
STURGEON BAY UTILITIES	WISCONSIN PUBLIC SERVICE CORPORATION	91,812	2,735,622	18,232	57.5	2.98	3.06
SUN PRAIRIE WATER & ELECTRIC UTILITY	WISCONSIN POWER AND LIGHT COMPANY	79,938	2,491,199	17,586	51.9	3.12	3.04
TWO RIVERS WATER & ELECTRIC UTILITY	WISCONSIN PUBLIC SERVICE CORPORATION	69,275	2,006,954	13,308	59.4	2.90	2.75
WISCONSIN RAPIDS WATERWORKS & LIGHT	WISCONSIN POWER AND LIGHT COMPANY	50,793	1,660,417	11,072	52.4	3.27	3.16
WISCONSIN RAPIDS WATERWORKS & LIGHT	WISCONSIN PUBLIC SERVICE CORPORATION	<u>114,064</u>	<u>3,275,404</u>	<u>21,657</u>	<u>60.1</u>	<u>2.87</u>	<u>2.71</u>
	TOTAL	<u>164,857</u>	<u>4,935,821</u>	2/	2/	<u>2.99</u>	<u>2.89</u>
TOTAL		1,727,396	\$45,901,232			2.66	2.43

^{1/} Generates a portion of its energy requirement.

^{2/} Not available.

TABLE 4
 COST OF ENERGY PURCHASED BY
 CLASS C MUNICIPAL ELECTRIC UTILITIES
 1980

UTILITY	VENDOR	THOUSANDS OF KWH PURCHASED	TOTAL COST	15 MIN. MAXIMUM DEMAND	LOAD FACTOR	AVERAGE COST PER KWH 1980	AVERAGE COST PER KWH 1979
ALGOMA MUNICIPAL WATER AND ELECTRIC	WISCONSIN PUBLIC SERVICE CORPORATION	30,356	\$ 828,868	6,016	57.6	2.73	2.98
ARCADIA MUN LIGHT AND WATER UTILITY ^{1/}	TREMPELEAU ELECTRIC COOPERATIVE	22,957	547,762	5,630	46.6	2.39	2.63
BANGOR MUNICIPAL UTILITY	NORTHERN STATES POWER COMPANY	26,189	686,463	5,334	56.1	2.62	2.24
BARRON LIGHT AND WATER DEPARTMENT ^{1/}	BARRON ELECTRIC COOPERATIVE	22,233	602,795	4,440	57.2	2.71	2.62
BLACK EARTH MUN WATER SEWER & ELEC	WISCONSIN POWER AND LIGHT COMPANY	9,967	311,885	1,959	58.1	3.13	3.05
BLACK RIVER FALLS WATER AND ELECTRIC ^{1/}	NORTHERN STATES POWER COMPANY	35,509	716,762	7,280	55.7	2.02	2.00
BLOOMER MUNICIPAL ELECTRIC UTILITY	NORTHERN STATES POWER COMPANY	30,067	799,300	6,434	53.4	2.66	2.31
BOSCOBEL (MUNICIPAL) UTILITIES	WISCONSIN POWER AND LIGHT COMPANY	24,210	754,356	5,286	52.3	3.12	3.03
BRODHEAD WATER AND LIGHTING COMM.	WISCONSIN POWER AND LIGHT COMPANY	21,482	673,727	4,540	54.0	3.14	3.01
CLINTONVILLE WATER & ELECTRIC PLANT	WISCONSIN ELECTRIC POWER COMPANY	41,718	1,219,814	8,513	55.9	2.92	2.59
COLUMBUS WATER AND ELECTRIC UTILITY	WISCONSIN POWER AND LIGHT COMPANY	33,840	1,051,261	6,638	58.2	3.11	3.05
CORNELL MUN WATER AND ELECTRIC UTIL	NORTHERN STATES POWER COMPANY	9,643	249,757	2,187	50.3	2.59	2.34
CUBA CITY WATER AND ELECTRIC UTILITY	WISCONSIN POWER AND LIGHT COMPANY	12,358	397,805	2,750	51.3	3.22	3.17
CUMBERLAND MUNICIPAL UTILITY ^{1/}	BARRON ELECTRIC COOPERATIVE	16,692	454,928	3,800	50.1	2.73	2.73
DEERFIELD MUN WATER & ELECTRIC UTIL	WISCONSIN ELECTRIC POWER COMPANY	8,462	253,841	1,846	52.3	3.00	2.67
EAGLE RIVER LIGHT AND WATER DEPT	WISCONSIN PUBLIC SERVICE CORPORATION	19,865	601,019	3,812	59.5	3.03	3.14
ELKHORN LIGHT AND WATER COMMISSION	WISCONSIN ELECTRIC POWER COMPANY	50,400	1,359,734	10,800	53.3	2.70	2.54
ELROY MUN WATER AND ELECTRIC UTILITY ^{1/}	GAKDALE ELECTRIC COOP - LA VALLE	11,145	256,660	2,208	57.6	2.30	2.57

TABLE 4
 COST OF ENERGY PURCHASED BY
 CLASS C MUNICIPAL ELECTRIC UTILITIES
 1980

UTILITY	VENDOR	THOUSANDS OF KWH PURCHASED	TOTAL COST	15 MIN. MAXIMUM DEMAND	LOAD FACTOR	AVERAGE COST PER KWH	
						1980	1979
EVANSVILLE MUN WATER & ELECTRIC UTIL	WISCONSIN POWER AND LIGHT COMPANY	35,414	\$ 1,152,933	8,032	50.3	3.26	3.13
FENNIMORE WATER AND LIGHT PLANT ^{1/}	GRANT ELECTRIC COOPERATIVE	19,390	567,624	3,806	58.2	2.93	2.85
FLORENCE WATER AND LIGHT COMMISSION	WISCONSIN ELECTRIC POWER COMPANY	7,760	205,715	1,404	63.1	2.65	2.40
GRESHAM MUN. LIGHT AND POWER UTILITY ^{1/}	WISCONSIN POWER AND LIGHT COMPANY	5,656	191,047	1,383	46.7	3.38	3.43
HARTFORD MUN WATER AND ELECTRIC	WISCONSIN ELECTRIC POWER COMPANY	57,091	1,571,258	12,710	51.3	2.75	2.64
HAZEL GREEN MUNICIPAL UTILITIES	WISCONSIN POWER AND LIGHT COMPANY	6,093	204,835	1,308	53.2	3.36	3.26
HUSTISFORD MUNICIPAL UTILITIES	WISCONSIN POWER AND LIGHT COMPANY	11,650	360,228	2,175	61.1	3.09	3.02
JEFFERSON WATER AND ELECTRIC DEPT	WISCONSIN ELECTRIC POWER COMPANY	86,534	2,460,972	16,262	60.7	2.84	2.53
JUNEAU UTILITY COMMISSION	WISCONSIN POWER AND LIGHT COMPANY	22,131	660,199	4,122	61.3	2.98	2.95
KIEL MUNICIPAL UTILITIES	WISCONSIN ELECTRIC POWER COMPANY	30,720	887,280	5,740	61.1	2.89	2.57
LAKE HILLS LIGHT AND WATER DEPT	WISCONSIN ELECTRIC POWER COMPANY	46,032	1,473,446	9,893	53.1	3.20	2.57
LODI MUN LIGHT AND WATER UTILITY	WISCONSIN POWER AND LIGHT COMPANY	12,627	395,378	3,004	48.0	3.13	3.07
MAZOMANIE ELECTRIC UTILITY	WISCONSIN POWER AND LIGHT COMPANY	7,191	246,201	1,736	47.3	3.42	3.34
MEDFORD ELECTRIC UTILITY	LAKE SUPERIOR DISTRICT POWER COMPANY	52,730	1,555,245	10,911	55.2	2.95	2.92
MOUNT HOREB ELECTRIC UTILITY	WISCONSIN POWER AND LIGHT COMPANY	28,546	877,424	5,292	61.6	3.07	2.95
MUSCODA LIGHT AND WATER DEPARTMENT	WISCONSIN POWER AND LIGHT COMPANY	12,588	411,215	2,772	51.8	3.27	3.12
NEW GLARUS MUN WATER & ELECTRIC UTIL	WISCONSIN POWER AND LIGHT COMPANY	12,768	418,250	2,757	52.9	3.28	3.16
NEW HOLSTEIN PUBLIC UTILITIES	WISCONSIN PUBLIC SERVICE CORPORATION	46,044	1,474,350	10,336	50.9	3.20	3.21

TABLE 4
 COST OF ENERGY PURCHASED BY
 CLASS C MUNICIPAL ELECTRIC UTILITIES
 1980

UTILITY	VENDOR	THOUSANDS OF KWH PURCHASED	TOTAL COST	15 MIN. MAXIMUM DEMAND	LOAD FACTOR	AVERAGE COST PER KWH	
						1980	1979
NEW LISBON MUN WATER & ELECTRIC UTIL ^{1/}	CANCALE ELECTRIC COOP - LA VALLE	10,332	\$ 219,512	2,027	58.2	2.12	2.35
NEW LONDON MUN WATER & ELECTRIC DEPT	WISCONSIN ELECTRIC POWER COMPANY	105,980	2,820,315	18,150	66.7	2.66	2.45
NEW RICHMOND MUNICIPAL ELECTRIC UTIL	NORTHERN STATES POWER COMPANY	36,744	983,493	7,707	54.4	2.68	2.27
OCONTO FALLS WATER AND LIGHT DEPT	WISCONSIN ELECTRIC POWER COMPANY	16,758	457,203	3,200	59.8	2.73	2.44
PARDEVILLE MUN. ELECTRIC UTILITY ^{1/}	WISCONSIN POWER AND LIGHT COMPANY	10,154	315,546	2,120	54.7	3.11	3.05
PRAIRIE DU SAC MUN WATER & ELECTRIC	WISCONSIN POWER AND LIGHT COMPANY	11,844	391,676	2,649	51.0	3.31	3.24
PRINCETON MUN WATER & ELECTRIC UTIL	WISCONSIN POWER AND LIGHT COMPANY	9,676	300,360	2,043	54.1	3.10	3.05
REEDSBURG UTILITY COMMISSION	WISCONSIN POWER AND LIGHT COMPANY	72,104	2,239,671	14,022	58.7	3.11	3.01
RICE LAKE MUN WATER & ELECTRIC UTIL	NORTHERN STATES POWER COMPANY	80,758	2,164,662	16,356	56.4	2.68	2.27
RICHLAND CENTER ELECTRIC UTILITY ^{1/}	CAIRYLAND POWER COOPERATIVE	32,497	1,127,674	12,900	28.8	3.47	2.64
RIVER FALLS MUNICIPAL UTILITIES ^{1/}	PIERCE-PEPIN ELECTRIC COOPERATIVE	44,521	1,053,514	11,383	44.7	2.37	2.42
SAUK CITY MUN WATER & ELECTRIC UTIL	WISCONSIN POWER AND LIGHT COMPANY	20,693	702,263	4,656	50.7	3.39	3.20
SHEBOYGAN FALLS MUN WATER & ELECTRIC	WISCONSIN POWER AND LIGHT COMPANY	84,924	2,559,955	14,634	66.3	3.01	2.91
SHULLSBURG ELECTRIC UTILITY	WISCONSIN POWER AND LIGHT COMPANY	8,140	269,444	1,695	54.8	3.31	3.16
SLINGER UTILITIES	WISCONSIN ELECTRIC POWER COMPANY	15,231	461,344	4,294	40.5	3.03	2.73
SPOONER MUNICIPAL UTILITY	NORTHERN STATES POWER COMPANY	18,247	460,716	3,614	57.6	2.52	2.23
WATERLOO WATER AND ELECTRIC COMM	WISCONSIN ELECTRIC POWER COMPANY	28,747	838,414	5,678	57.8	2.92	2.58
WAUNAKEE WATER AND LIGHT COMMISSION	WISCONSIN POWER AND LIGHT COMPANY	29,772	970,436	7,380	46.1	3.26	3.14

TABLE 4

COST OF ENERGY PURCHASED BY
CLASS C MUNICIPAL ELECTRIC UTILITIES
1980

UTILITY	VENDOR	THOUSANDS OF KWH PURCHASED	TOTAL COST	15 MIN. MAXIMUM DEMAND	LOAD FACTOR	AVERAGE COST PER KWH	
						1980	1979
WAUPUN PUBLIC UTILITIES	WISCONSIN POWER AND LIGHT COMPANY	51,930	\$ 1,625,417	10,368	57.2	3.13	3.06
WESTBY MUN WATER & ELECTRIC UTILITY	NORTHERN STATES POWER COMPANY	14,178	353,656	2,797	57.9	2.49	2.20
WHITEHALL MUNICIPAL ELECTRIC UTILITY	NORTHERN STATES POWER COMPANY	15,312	403,514	3,214	54.4	2.64	2.23
WISCONSIN DELLS MUN ELECTRIC UTILITY	WISCONSIN POWER AND LIGHT COMPANY	26,016	823,403	7,788	38.1	3.16	3.07
WONEWOC MUN WATER & ELECTRIC UTILITY	WISCONSIN POWER AND LIGHT COMPANY	<u>6,434</u>	<u>214,975</u>	<u>1,337</u>	<u>54.9</u>	<u>3.34</u>	<u>3.29</u>
TOTAL		1,679,050	\$48,637,500			2.90	2.73

^{1/} Generates a portion of its energy requirement.

TABLE 5
 COST OF ENERGY PURCHASED BY
 CLASS D MUNICIPAL ELECTRIC UTILITIES
 1980

UTILITY	VENDOR	THOUSANDS OF KWH PURCHASED	TOTAL COST	15 MIN. MAXIMUM DEMAND	LOAD FACTOR	AVERAGE COST PER KWH	
						1980	1979
ARGYLE MUN WATER AND ELECTRIC UTIL ^{1/}	LAFAYETTE ELECTRIC COOPERATIVE	4,745	\$ 119,253	1,037	52.2	2.51	2.72
BELMONT MUN WATER AND ELECTRIC UTIL	WISCONSIN POWER AND LIGHT COMPANY	4,747	158,020	990	54.7	3.33	3.25
BENTON MUN WATER AND ELECTRIC UTIL	WISCONSIN POWER AND LIGHT COMPANY	4,067	135,162	870	53.4	3.32	3.28
CADOTT LIGHT AND WATER DEPARTMENT	NORTHERN STATES POWER COMPANY	8,630	238,399	2,016	48.9	2.76	2.39
CASHTON MUN WATER AND ELECTRIC UTIL ^{1/}	VERNON ELECTRIC COOPERATIVE	5,158	125,959	1,291	45.6	2.44	2.55
CENTURIA MUNICIPAL ELECTRIC UTILITY	NORTHWESTERN WISCONSIN ELECTRIC CO	4,019	138,789	876	52.4	3.45	3.08
COMBINED LOCKS WATER & ELECTRIC UTIL	KAUKAUNA MUN WATER & ELECTRIC UTIL	380	9,155	<u>2/</u>	<u>2/</u>	2.41	2.06
FOOTVILLE WATER AND ELECTRIC COMM	WISCONSIN POWER AND LIGHT COMPANY	3,496	116,751	823	48.5	3.34	3.22
LA FARGE MUNICIPAL ELECTRIC UTILITY	VERNON ELECTRIC COOPERATIVE	4,441	166,554	914	55.5	3.75	3.51
MERRILLAN MUN WATER & ELECTRIC UTIL ^{1/}	JACKSON ELECTRIC COOPERATIVE	2,570	65,486	566	51.8	2.55	3.45
STRATFORD MUN WATER & ELECTRIC UTIL	WISCONSIN PUBLIC SERVICE CORPORATION	7,552	241,446	1,673	51.5	3.20	3.38
TREMPEALEAU MUN WATER & ELECTRIC	NORTHERN STATES POWER COMPANY	6,318	161,164	1,416	50.9	2.55	2.28
VIOLA MUN WATER AND ELECTRIC UTILITY ^{1/}	VERNON ELECTRIC COOPERATIVE	<u>3,744</u>	<u>91,076</u>	<u>764</u>	<u>55.9</u>	<u>2.43</u>	<u>2.47</u>
TOTAL		59,867	\$ 1,767,214			2.95	2.90

^{1/} Generates a portion of its energy requirement.

^{2/} Not available.

TABLE 6
 COST OF ENERGY PURCHASED BY
 SMALL PRIVATE ELECTRIC UTILITIES
 1980

UTILITY	VENDOR	THOUSANDS OF KWH PURCHASED	TOTAL COST	15 MIN. MAXIMUM DEMAND	LOAD FACTOR	AVERAGE COST PER KWH	
						1980	1979
CROSS PLAINS ELECTRIC COMPANY	WISCONSIN POWER AND LIGHT COMPANY	13,231	\$ 445,135	3,032	49.8	3.36	3.25
DAHLBERG LIGHT AND POWER COMPANY ^{1/}	SUPERIOR WATER LIGHT AND POWER CO	56,669	1,796,094	11,000	58.8	3.17	2.87
NORTH CENTRAL POWER COMPANY INC ^{1/}	LAKE SUPERIOR DISTRICT POWER COMPANY	9,798	301,952	2,446	45.7	3.08	3.17
NORTHWESTERN WISCONSIN ELECTRIC CO ^{1/}	DAIRYLAND POWER COOPERATIVE	0	0				2.82
NORTHWESTERN WISCONSIN ELECTRIC CO	NEW LISBON MUN WATER & ELECTRIC UTIL	0	0				16.65
	TOTAL	0	0	<u>2/</u>	<u>2/</u>		2.88
PIONEER POWER AND LIGHT COMPANY ^{1/}	WISCONSIN POWER AND LIGHT COMPANY	14,206	435,255	3,168	51.2	3.06	2.99
WESTFIELD MILLING AND ELECTRIC LT CO	PIONEER POWER AND LIGHT COMPANY	<u>7,167</u>	<u>242,080</u>	<u>2/</u>	<u>2/</u>	<u>3.38</u>	<u>3.33</u>
TOTAL		101,071	\$ 3,220,516			3.19	2.94

^{1/} Generates a portion of its energy requirement.

^{2/} Not available.

TABLE 7

COST OF ENERGY PURCHASED BY
RURAL ELECTRIC COOPERATIVES
1980

UTILITY	VENDOR	THOUSANDS OF KWH PURCHASED	TOTAL COST	15 MIN. MAXIMUM DEMAND	LOAD FACTOR	AVERAGE COST PER KWH	
						1980	1979
ADAMS-MARQUETTE ELECTRIC COOPERATIVE	WISCONSIN POWER AND LIGHT COMPANY	101,723	\$ 2,686,208	21,198	54.8	2.64	2.56
CENTRAL WISCONSIN ELECTRIC COOP	WISCONSIN POWER AND LIGHT COMPANY	53,746	1,436,995	13,628	57.7	2.67	2.61
COLUMBUS RURAL ELECTRIC COOPERATIVE	WISCONSIN POWER AND LIGHT COMPANY	46,258	1,215,998	12,229	43.2	2.63	2.52
ROCK COUNTY ELECTRIC COOPERATIVE	WISCONSIN POWER AND LIGHT COMPANY	53,334	1,454,839	11,629	52.4	2.73	2.64
WAUSHARA ELECTRIC COOPERATIVE	WISCONSIN POWER AND LIGHT COMPANY	<u>52,006</u>	<u>1,445,542</u>	<u>17,503</u>	<u>33.9</u>	<u>2.78</u>	<u>2.76</u>
TOTAL		307,067	\$ 8,239,582			2.68	2.61

APPENDIX D

DEFINITIONS OF FAIR MARKET VALUE

DEFINITIONS OF FAIR MARKET VALUE

FULL AND MARKET VALUE

The basis for the assessor's valuation of real property is found in s.70.32, (1) Stats., "Real property shall be valued by the assessor in the manner specified in the Wisconsin property assessment manual under s.73.03 (2a), Stats., from actual view or from the best information that the assessor can practically obtain at the full value which could ordinarily be obtained therefor at private sale." Numerous Wisconsin court cases have held that full value is equivalent to market value.

In the book Real Estate Appraisal Technology, market value is defined as: The highest price in terms of money which a property will bring in a competitive and open market under all conditions requisite to a fair sale. The buyer and seller, each acting prudently, knowledgeably and assuming the price is not affected by undue stimulus." Thus, the goal of the assessor is to estimate the full or market value of the real property.

There are certain conditions that are necessary for a sale to be considered a "market value" transaction. These are:

1. It must have been exposed to the open market for a period of time typical of the turnover time for the type of property involved.
2. It presumes that both buyer and seller are knowledgeable about the real estate market.
3. It presumes buyer and seller are knowledgeable about the uses, present and potential, of the property.
4. It requires a willing buyer and a willing seller, with neither party compelled to act.
5. Payment for the property is cash, or typical of normal financing and payment arrangements prevalent in the market for the type of property involved.

Real Estate Appraisal Terminology also defines value as, "The present worth of future benefits arising out of ownership to typical users or investors." What the investor is actually buying is the future income of the property. The users are typically purchasing the right to use the real property for personal satisfaction, shelter, or other benefits in the future. It is these future or anticipated benefits that give value to the property.

Source: Wisconsin Property Assessment Manual Volume I, Part I, page 7-3, 1980 edition, revised December 1982.

DEFINITION OF MARKET VALUE

The most probable price in cash, terms equivalent to cash, or in other precisely revealed terms, for which the appraised property will sell in a competitive market under all conditions requisite to fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress.

Fundamental assumptions and conditions presumed in this definition are

1. Buyer and seller are motivated by self-interest.
2. Buyer and seller are well informed and are acting prudently.
3. The property is exposed for a reasonable time on the open market.
4. Payment is made in cash, its equivalent, or in specified financing terms generally available for the property type in its locale on the effective appraisal date.
5. The effect, if any, on the amount of market value of atypical financing, services, or fees shall be clearly and precisely revealed in the appraisal report.

Source: American Institute of Real Estate Appraisers, The Appraisal of Real Estate, Eighth Edition, Chicago, IL, 1983, p. 33.

APPENDIX E
STANDARD LIMITING CONDITIONS

STATEMENTS OF GENERAL ASSUMPTIONS AND
LIMITING CONDITIONS

1. Contributions of Other Professionals

- . Information furnished by others in the report, while believed to be reliable, is in no sense guaranteed by the appraisers.
- . The appraiser assumes no responsibility for legal matters.
- . All information furnished regarding property for sale or rent, financing, or projections of income and expenses is from sources deemed reliable. No warranty or representation is made regarding the accuracy thereof, and it is submitted subject to errors, omissions, change of price, rental or other conditions, prior sale, lease, financing, or withdrawal without notice.

2. Facts and Forecasts Under Conditions of Uncertainty

- . The comparable sales data relied upon in the appraisal is believed to be from reliable sources. Though all the comparables were examined, it was not possible to inspect them all in detail. The value conclusions are subject to the accuracy of said data.
- . Forecasts of the effective demand for space are based upon the best available data concerning the market, but are projected under conditions of uncertainty.
- . Engineering analyses of the subject property were neither provided for use nor made as a part of this appraisal contract. Any representation as to the suitability of the property for uses suggested in this analysis is therefore based only on a rudimentary investigation by the appraiser and the value conclusions are subject to said limitations.
- . Since the projected mathematical models are based on estimates and assumptions, which are inherently subject to uncertainty and variation depending upon evolving events, we do not represent them as results that will actually be achieved.

- . Sketches in the report are included to assist the reader in visualizing the property. These drawings are for illustrative purposes only and do not represent an actual survey of the property.

3. Controls on Use of Appraisal

- . Values for various components of the subject parcel as contained within the report are valid only when making a summation and are not to be used independently for any purpose and must be considered invalid if so used.
- . Possession of the report or any copy thereof does not carry with it the right of publication nor may the same be used for any other purpose by anyone without the previous written consent of the appraiser or the applicant and, in any event, only in its entirety.
- . Neither all nor any part of the contents of the report shall be conveyed to the public through advertising, public relations, news, sales, or other media without the written consent and approval of the author, particularly regarding the valuation conclusions and the identity of the appraiser, of the firm with which he is connected, or any of his associates.
- . The report shall not be used in the client's reports or financial statements or in any documents filed with any governmental agency, unless: (1) prior to making any such reference in any report or statement or any document filed with the Securities and Exchange Commission or other governmental agency, the appraiser is allowed to review the text of such reference to determine the accuracy and adequacy of such reference to the appraisal report prepared by the appraiser; (2) in the appraiser's opinion the proposed reference is not untrue or misleading in light of the circumstances under which it is made; and (3) written permission has been obtained by the client from the appraiser for these uses.
- . The appraiser shall not be required to give testimony or to attend any governmental hearing regarding the subject matter of this appraisal without agreement as to additional compensation and without sufficient notice to allow adequate preparation.

APPENDIX F
CERTIFICATION OF VALUE

CERTIFICATION OF VALUE

We hereby certify that we have no interest, present or contemplated, in the property and that neither the employment to make the appraisal nor the compensation is contingent on the value of the property. We certify that we have personally inspected the property and that according to our knowledge and belief, all statements and information in the report are true and correct, subject to the underlying assumptions and limiting conditions.

Based on the information and subject to the limiting conditions contained in this report, we concluded that the fair market value of land, site improvements, and real estate structures related to the hydroelectric system owned by the Wisconsin River Power System and known as the Castle Rock-Petenwell Hydroelectric System, (the System), as of January 1, 1980 is:

THIRTY-FOUR MILLION DOLLARS

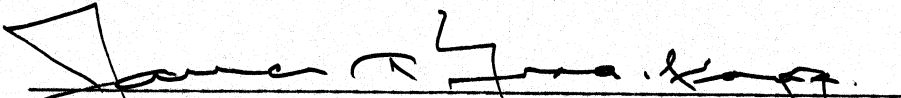
(\$34,000,000)

We have further concluded that the total value of the system can be allocated by historical cost which indicates that 0.366716 of this total value is located in the Township of Quincy totalling \$12,468,339 of fair market value. To this value allocation the

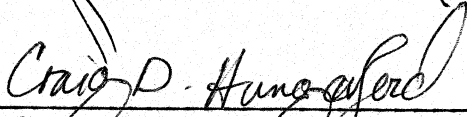
equalization rate for the Township of Quincy in 1980 of 0.3959
must be applied to determine that January 1, 1980, equalized
assessment value to be recorded is:

FOUR MILLION NINE HUNDRED AND
THIRTY-SIX THOUSAND DOLLARS

(\$4,936,000)



James A. Graaskamp, Ph.D., SREA, CRE



Craig D. Hungerford, M.S.
Real Estate Appraiser/Analyst

7/5/85
Date

APPENDIX G
QUALIFICATIONS OF APPRAISERS

J A M E S A. G R A A S K A M P

PROFESSIONAL DESIGNATIONS

SREA, Senior Real Estate Analyst, Society of Real Estate Appraisers

CRE, Counselor of Real Estate, American Society of Real Estate
Counselors

CPCU, Certified Property Casualty Underwriter, College of Property
Underwriters

EDUCATION

Ph.D., Urban Land Economics and Risk Management - University of Wisconsin
Master of Business Administration Security Analysis - Marquette University
Bachelor of Arts - Rollins College

ACADEMIC AND PROFESSIONAL HONORS

Chairman, Department of Real Estate and Urban Land Economics,
School of Business, University of Wisconsin
Urban Land Institute Research Fellow
University of Wisconsin Fellow
Omicron Delta Kappa
Lambda Alpha - Ely Chapter
Beta Gamma Sigma
William Kiekhofer Teaching Award (1966)
Urban Land Institute Trustee

PROFESSIONAL EXPERIENCE

Dr. Graaskamp is the President and founder of Landmark Research, Inc., which was established in 1968. He is also co-founder of a general contracting firm, a land development company, and a farm investment corporation. He is formerly a member of the Board of Directors and treasurer of the Wisconsin Housing Finance Agency. He is currently a member of the Board and Executive Committee of First Asset Realty Advisors, a subsidiary of First Bank Minneapolis. He is the co-designer and instructor of the EDUCARE teaching program for computer applications in the real estate industry. His work includes substantial and varied consulting and valuation assignments to include investment counseling to insurance companies and banks, court testimony as expert witness and the market/financial analysis of various projects, both nationally and locally, and for private and corporate investors and municipalities.

C R A I G D. H U N G E R F O R D

EDUCATION

Master of Science in Business; major in Real Estate Appraisal
and Investment Analysis - University of Wisconsin - Madison

Master of Arts in Landscape Architecture - University of
Wisconsin - Madison

Bachelor of Science in Landscape Architecture - University of
Wisconsin - Madison

PROFESSIONAL EXPERIENCE

Mr. Hungerford is currently associated with Landmark Research, Inc., as an appraiser and research consultant. He has a variety of experience in valuation, feasibility, and land use studies for private, corporate, and municipal clients. His specialties include computer applications and simulation for development and wilderness and valuation purposes.

