

June 17, 2003

A Guide to the RUS Borrower Statistical Profile

This guide was originally prepared in September 1990 as a reference tool for RUS personnel. It was updated in June 2003 to reflect changes made to the RUS Form 7 and to accommodate the changes that were made, additions and subtractions, to the BSP ratios. This guide is not intended to be all encompassing or complete in every detail. The definitions and illustrations presented in this guide represent a reasonable and easily understandable description of the ratio(s) involved, and may not be an exact financial, accounting or engineering representation of the term.

Introduction

Every year RUS prepares an updated comparison-type report based on a compilation of the most recent three years operating data as reported by RUS financed distribution systems on their RUS Form 7 (Financial and Statistical Report). This comparison report is called the Borrower Statistical Profile (BSP). The BSP is not intended as an all inclusive reference document on RUS borrowers, but rather as a data base allowing comparisons of financial and operating ratios of the systems against state, area, and national figures.

Financial and operating ratios can be meaningful tools which RUS can use to better understand a given rural electric system's performance. While financial statements and operating reports supply valuable data they often do not convey a complete picture of a system's total performance. The ratios provided in the BSP can help put this kind of raw information into sharper focus.

In financial ratio analysis, ratios are not viewed in a vacuum. Rather comparisons are made in a variety of ways. Three popular methods for making ratio comparisons are trending, standards and interrelationships.

Trending: concentrates on the change in ratios over a certain time period. The three year history provided by the BSP is an example of trend analysis. Trends indicate the direction in which a cooperative is moving. For example, a three year decline in TIER may indicate that reducing expenses or implementing a rate increase may be needed to avoid a mortgage default.

Standards: involve setting absolutes or making comparisons to other ratios. For example, TIER may be compared to an absolute standard of 2.0. Comparisons to the state, area or national medians are examples of standards. The High and Low flags are standards for comparative purposes.

Interrelationships: among ratios are used when comparing one ratio to a different but related ratio. For example, high outages and low O&M expense may indicate that additional funds are needed for maintenance.

This guide to the BSP includes each of these types of ratio analysis. None of the three methods is complete in and of itself. Each must be supplemented with a knowledge of the particular system and any extraordinary events which may have impacted a certain ratio.

The National Rural Utilities Cooperative Finance Corporation (CFC) also publishes a similar set of ratios as the BSP, known as CFC's Key Ratio Trends Analysis. Both RUS and CFC use many of these ratios to assess the performance of borrowers and to evaluate creditworthiness. Of course, when comparing ratios of different systems, it isn't necessarily good or bad to have a higher or lower ratio in a particular area. The interpretation of a ratio's significance will often depend upon many factors including: financial goals that a cooperative is trying to achieve, peculiar operating characteristics, and the socio-economic characteristics of the service territory.

It is very important that one does not draw any conclusions by looking at any single ratio, but rather by looking at the numerous interrelationships among the various ratios. One should look not only at trends and changes in trends, for a given system but also at trends of the other electric distribution systems in their geographic area and for the electric utility industry as a whole.

Borrower Statistical Profile

The BSP contains 72 ratios and is divided into 8 broad categories:

- Financial
- Per Consumer
- Employee Related Costs
- Megawatt Hours Sold
- Plant Investment
- Long-Term Debt
- Revenue
- Operating

The first three columns provide values for the individual borrower for the last three years.

XXX 00 Electric Distribution System, Inc.

Item	Borrower Data		
	1999	2000	2001
Financial Ratios			
1. TIER (one year)	1.71	1.68	1.57
2. Average TIER	2.71	2.17	1.70
3. OTIER (one year)	1.26	1.31	1.44
4. Average OTIER	2.12	1.56	1.38
5. MTIER (one year)	1.18	1.24	1.35
6. DSC (one year)	1.81	1.71	1.69
7. Average DSC	2.54	2.15	1.76
8. ODSC (one year)	1.46	1.51	1.60
9. Average ODSC	2.13	1.73	1.56
10. MDSC	1.41	1.45	1.53
11. PRR (one year)	7.97	8.15	7.73
12. Equity Ratio	41.51	39.74	39.62

The next three columns display the median values for this ratio for the United States, the borrower's "peer group" (borrowers served by the same power supplier) or, if there are fewer than five peer group members, the RUS area the borrower operates within; and for the State.

XXX 00 Electric Distribution System, Inc. Supplied by: G&T Electric Power Coop.

Item	Borrower Data			Median Values		
	1999	2000	2001	U.S.	Peer Group	State
Financial Ratios						
1. TIER (one year)	1.71	1.68	1.57	2.14	2.02	2.51
2. Average TIER	2.71	2.17	1.70	2.30	2.28	2.56
3. OTIER (one year)	1.26	1.31	1.44	1.77	1.78	2.14
4. Average OTIER	2.12	1.56	1.38	1.86	1.86	2.03
5. MTIER (one year)	1.18	1.24	1.35	1.81	1.83	2.17
6. DSC (one year)	1.81	1.71	1.69	2.04	2.07	2.24
7. Average DSC	2.54	2.15	1.76	2.17	2.26	2.33
8. ODSC (one year)	1.46	1.51	1.60	1.83	1.89	1.99
9. Average ODSC	2.13	1.73	1.56	1.91	2.02	1.92
10. MDSC	1.41	1.45	1.53	1.86	1.96	1.98
11. PRR (one year)	7.97	8.15	7.73	6.25	6.05	5.87
12. Equity Ratio	41.51	39.74	39.62	43.39	44.09	45.54

The next three columns provide the maximum value in the State in which the system operates, the values for the third quartile (Q3) in which only one-fourth of the values are larger than the one shown, as well as the first quartile (Q1) in which only one-fourth of the values are smaller than the one shown.

XXX 00 Electric Distribution System, Inc. Supplied by: G&T Electric Power Coop.

Item	Borrower Data			State Values		
	1999	2000	2001	Max	Q3	Q1
Financial Ratios						
1. TIER (one year)	1.71	1.68	1.57	26.40	3.40	1.81
2. Average TIER	2.71	2.17	1.70	25.12	3.26	2.16
3. OTIER (one year)	1.26	1.31	1.44	24.76	3.20	1.54
4. Average OTIER	2.12	1.56	1.38	20.93	2.82	1.58
5. MTIER (one year)	1.18	1.24	1.35	25.41	2.99	1.42
6. DSC (one year)	1.81	1.71	1.69	12.01	3.10	1.79
7. Average DSC	2.54	2.15	1.76	12.27	2.80	1.98
8. ODSC (one year)	1.46	1.51	1.60	11.40	2.98	1.65
9. Average ODSC	2.13	1.73	1.56	10.55	2.68	1.71
10. MDSC	1.41	1.45	1.53	11.64	2.94	1.60
11. PRR (one year)	7.97	8.15	7.73	7.73	6.24	5.36
12. Equity Ratio	41.51	39.74	39.62	87.36	60.73	43.72

The next value shown is the minimum value for the State.

XXX 00 Electric Distribution System, Inc. Supplied by: G&T Electric Power Coop.

Item	Borrower Data			State Values			
	1999	2000	2001	Max	Q3	Q1	Min
Financial Ratios							
1. TIER (one year)	1.71	1.68	1.57	26.40	3.40	1.81	1.15
2. Average TIER	2.71	2.17	1.70	25.12	3.26	2.16	1.30
3. OTIER (one year)	1.26	1.31	1.44	24.76	3.20	1.54	1.16
4. Average OTIER	2.12	1.56	1.38	20.93	2.82	1.58	1.13
5. MTIER (one year)	1.18	1.24	1.35	25.41	2.99	1.42	.071
6. DSC (one year)	1.81	1.71	1.69	12.01	3.10	1.79	1.05
7. Average DSC	2.54	2.15	1.76	12.27	2.80	1.98	1.26
8. ODSC (one year)	1.46	1.51	1.60	11.40	2.98	1.65	1.22
9. Average ODSC	2.13	1.73	1.56	10.55	2.68	1.71	1.21
10. MDSC	1.41	1.45	1.53	11.64	2.94	1.60	.088
11. PRR (one year)	7.97	8.15	7.73	7.73	6.24	5.36	4.26
12. Equity Ratio	41.51	39.74	39.62	87.36	60.73	43.72	35.13

The last column on the BSP provides a flag if the particular system is high or low compared to other systems in that state; i.e. above the third quartile (Q3) or below the first quartile (Q1).

XXX 00 Electric Distribution System, Inc. Supplied by: G&T Electric Power Coop.

Item	Borrower Data			State Values				
	1999	2000	2001	Max	Q3	Q1	Min	Flag
Financial Ratios								
1. TIER (one year)	1.71	1.68	1.57	26.40	3.40	1.81	1.15	LO
2. Average TIER	2.71	2.17	1.70	25.12	3.26	2.16	1.30	LO
3. OTIER (one year)	1.26	1.31	1.44	24.76	3.20	1.54	1.16	LO
4. Average OTIER	2.12	1.56	1.38	20.93	2.82	1.58	1.13	LO
5. MTIER (one year)	1.18	1.24	1.35	25.41	2.99	1.42	.071	LO
6. DSC (one year)	1.81	1.71	1.69	12.01	3.10	1.79	1.05	LO
7. Average DSC	2.54	2.15	1.76	12.27	2.80	1.98	1.26	LO
8. ODSC (one year)	1.46	1.51	1.60	11.40	2.98	1.65	1.22	LO
9. Average ODSC	2.13	1.73	1.56	10.55	2.68	1.71	1.21	LO
10. MDSC	1.41	1.45	1.53	11.64	2.94	1.60	.088	LO
11. PRR (one year)	7.97	8.15	7.73	7.73	6.24	5.36	4.26	HI
12. Equity Ratio	41.51	39.74	39.62	87.36	60.73	43.72	35.13	LO

NOTE: In those States where there are fewer than five RUS borrowers, a flag would be of little significance. Therefore, no flags are indicated for systems in States such New Hampshire, New York, Maryland, California, etc.

This guide to the BSP describes all of the 72 ratios included in the BSP. It provides a description of the ratio and a discussion of what information the ratio is intended to convey to the reader. The guide also provides a description of what a high or low flag might mean. The reader should be careful to notice that for certain ratios a high flag may be considered as good, whereas, for other ratios it may be bad. The same is true of low flagged ratios. The guide also refers the reader to other “related ratios” that should be reviewed in assessing the value of the ratio in question. Again, the reader is cautioned not to draw any conclusions from any one ratio in the BSP. In analyzing an RUS borrower, the interdependence among and between various ratios must be recognized to draw an accurate conclusion about any particular system. The BSP is but one of many sources of information to be utilized in evaluating the performance of a given borrower. These other sources should be consulted to gain a complete picture of the system’s financial and operating performance.

Other sources of information that an analyst should consult in assessing a particular system include, among others: Year End Operating Reports, CPA Audit Reports, RUS Loan Fund and Accounting Reviews (LFARs), Commission Reports, Systems Operations and Maintenance Reviews, rate filings, etc.

The analyst must also take into account the quality of management, stability of the board of directors, and any member problems the system might be experiencing.

The primary purposes of financial analysis are to highlight areas of strength and weakness, predict future performance, gauge past or present performance and to measure the impacts of changes in policies in accomplishing these goals.

For the benefit of those users of this guide who are unfamiliar with the format or content of the RUS Form 7, Financial and Statistical Report, a copy has been included as Appendix A.

AN INDEX TO THE RUS BORROWER STATISTICAL PROFILE

Financial (Ratios 1-20)

1. TIER
2. AVERAGE TIER
3. OTIER
4. AVERAGE OTIER
5. MTIER
6. DSC
7. AVERAGE DSC
8. ODSC
9. AVERAGE ODSC
10. MDSC
11. PRR
12. EQUITY RATIO %
13. MODIFIED EQUITY %
14. OPERATING REVENUE/MILE \$
15. GENERAL FUNDS/TOTAL UTILITY PLANT %
16. CURRENT RATIO
17. OPERATING MARGINS/RATE BASE %
18. RATE OF RETURN ON RATE BASE %
19. PAT. CAP. RETIRED/TOTAL PAT. CAP. (CUMULATIVE) %
20. PAT CAP RETIRED/NET MARGINS (PRIOR YEAR) %

Per Consumer (Ratios 21-33)

21. AVERAGE TOTAL CONSUMERS SERVED
22. CONSUMERS/MILE (DENSITY)
23. CONSUMERS/EMPLOYEE
24. LONG TERM DEBT/CONSUMER \$
25. DIST. & GEN. PLANT/CONSUMER \$
26. NET MARGINS/AVERAGE NO. CONSUMERS \$
27. AVG. MO. KWH/AVERAGE NO. RESD. CONS. EXCLUDING SEASONAL
28. AVG. MO. KWH/AVERAGE NO. RESD. CONS.
29. CONSUMER ACCOUNTS EXPENSE/AVERAGE NO. CONSUMERS \$
30. ADMINISTRATIVE & GENERAL EXPENSE/AVERAGE NO. CONSUMERS \$
31. CUSTOMER SERV. & INFO. EXPENSE/AVG. NO. CONSUMERS. \$
32. O&M+A&G+CONS ACCT. EXP./AVERAGE NO. CONSUMERS \$
33. POWER COST + TAX + DEPR. + INT./AVERAGE NO. CONSUMERS \$

Employee Related Costs (Ratios 34-37)

- 34. NUMBER OF EMPLOYEES
- 35. AVERAGE RATE PER HOUR \$
- 36. OVERTIME HOURS/TOTAL HOURS %
- 37. CAPITALIZED PAYROLL/TOTAL PAYROLL %

MWH Sold (Ratios 38-46)

- 38. MWH SOLD/1000
- 39. ANNUAL % CHANGE IN MWH SOLD %
- 40. MWH/MILE OF LINE
- 41. REVENUE/MWH (RESIDENTIAL EXCLUDING SEASONAL) \$
- 42. OPERATING REVENUE/MWH SOLD (TOTAL SALES) \$
- 43. OPERATING REVENUE LESS COST OF POWER/MWH SOLD \$
- 44. COST OF POWER/MWH SOLD \$
- 45. COMM. + INDUS. +IRR. MWH SOLD/TOTAL MWH SOLD %
- 46. O&M + A&G + CONS. ACCT. EXP./MWH SOLD \$

Plant Investment (Ratios 47-55)

- 47. TOTAL UTILITY PLANT/1000 \$
- 48. TOTAL UTILITY PLANT/MWH SOLD \$
- 49. TOTAL UTILITY PLANT/MILE OF LINE \$
- 50. O&M EXPENSE/\$1000 UTILITY PLANT \$
- 51. TAXES/\$1000 UTILITY PLANT \$
- 52. ACCUM. PROV. DEPRECIATION/UTILITY PLANT IN SERVICE %
- 53. NET NEW PLANT/TOTAL UTILITY PLANT %
- 54. GENERAL PLANT/TOTAL CONSUMERS \$
- 55. HEADQUARTERS PLANT/TOTAL CONSUMERS \$

Long-Term Debt (Ratios 56-58)

- 56. LONG TERM DEBT/TOTAL ASSETS %
- 57. INTEREST ON LONG TERM DEBT/AVERAGE LONG TERM DEBT %
- 58. RUS DEBT/TOTAL LONG TERM DEBT %

Revenue (Ratios 59-61)

- 59. INTEREST EXPENSE/OPERATING REVENUE %
- 60. INTEREST EXPENSE/OPERATING REVENUE LESS COST OF POWER %
- 61. COST OF POWER/OPERATING REVENUE %

Operating (Ratios 62-72)

- 62. ELECTRIC INVENTORY TURNOVER
- 63. ELECTRIC INVENTORY/TOTAL UTILITY PLANT %
- 64. CONSTRUCTION W.I.P./PLANT ADDITIONS %
- 65. NET NEW SERVICES/TOTAL SERVICES %
- 66. IDLE SERVICES/TOTAL SERVICES %
- 67. ANNUAL LOAD FACTOR %
- 68. SYSTEM LOSS %
- 69. TOTAL HOURS OUTAGE/CONSUMER
- 70. A/R OVER 60 DAYS/OPERATING REVENUE %
- 71. A/R WRITTEN OFF/OPERATING REVENUE %
- 72. OTHER INTEREST INCOME LESS OTHER INTEREST EXPENSE/\$1000
UTILITY PLANT

Financial (Ratios 1-20)

1) TIER (Times Interest Earned Ratio):

Formula: RUS Form 7, Part A
(A28b+A15b*)/A15b*

(Patronage Capital or Margins + Interest on Long-Term Debt) / Interest on Long-Term Debt)

TIER is a measure of a borrower's ability to repay its long-term debt. The margins (profits) must exceed the long-term interest expense. Lending institutions look to this ratio above all others as an indication of the borrower's financial condition. The RUS Loan Contract establishes a minimum TIER of 1.25 as the threshold at which loan security is jeopardized, and remedial measures should be taken.

FLAGS: **HIGH** A high flag could mean that the borrower has little long-term debt and, therefore, less long-term interest expense as a component of TIER.

LOW A TIER of less than 1.00 indicates that the borrower is losing money.

RELATED RATIOS:

- #3 - *OTIER*: A borrower who designs rates to achieve a profit from its operations will have a satisfactory OTIER.
- #5 - *Modified TIER*: A borrower which has designed its rates to achieve a satisfactory TIER excluding capital credits will be achieving a satisfactory Modified TIER.
- #6 - *DSC*: Usually if a borrower achieves an acceptable TIER, the DSC will be in a suitable range.
- #12 - *Equity Ratio*: A borrower who is achieving a satisfactory TIER will normally be building equity.
- #13 - *Modified Equity*: Excludes non-cash items such as G&T capital credits. This gives a more accurate measure of the borrower's equity level.
- #18 - *Rate of Return on Rate Base*: Usually if a borrower achieves a sufficient TIER, the rate of return will be in a respectable range.
- #56 - *Long Term Debt/Total Assets*: Measures the proportion of assets that is financed through debt as opposed to internally generated funds.
- #57 - *Interest on Long Term Debt/Average L.T. Debt*: Often referred to as the "blended" interest rate, this ratio measures the cost of borrower funds.

*Interest on Long-Term Debt shall be increased by 1/3 of the amount, if any, by which the rentals of Restricted Property (Line L3 of Form 7) exceed 2% of Margins and Equities (Line C35 of Form 7).

2) AVERAGE TIER

Formula: Average of the 2 highest TIER's of the last 3 years.

This is an extension of TIER, used in the loan contract. It is the average of the two highest TIER's during the three most recent years.

Example: 1999 TIER = 1.71
 2000 TIER = 1.68
 2001 TIER = 1.57

Dropping the lowest the average would be
 $(1.71 + 1.68)/2 = 1.70$

The RUS Loan Contract, Article V, Section 5.4, requires RUS borrowers to design rates sufficient to maintain an average TIER of at least 1.25. It should be understood, however, that RUS expects its borrowers to design and implement rates with a view towards meeting all expenses and achieving satisfactory TIER ratios every year.

FLAGS:	HIGH	A high flag could indicate that the borrower has very little long-term interest expense as a component of TIER. More likely, it would simply indicate that, relative to other systems in the State, the borrower has better margins, probably resulting from a more stable revenue stream.
	LOW	A low flag could indicate a borrower with higher long-term interest expense or, more likely, a borrower with less margins than other borrowers in the State.

RELATED RATIOS

(same as in item NO. 1, TIER)

3) OPERATING TIER (OTIER):

RUS Form 7, Part A

Formula: $(A20b+A15b^*+I2c(a))/A15b^*$

(Patronage Capital and Operating Margins + Interest on Long-Term Debt+Cash Received from Power Supplier or Lender on the Retirement of Capital Credits) / Interest on Long-Term Debt

OTIER is a measure of a borrower's ability to generate a sufficient amount of revenue from operations to repay its long-term debt. The RUS Loan Contract establishes a minimum OTIER of 1.1.

FLAGS: **HIGH** A high flag could mean that the borrower has little long-term debt and, therefore, less long-term interest expense as a component of OTIER.

LOW An OTIER of less than 1.00 indicates that the borrower's electric operations is losing money.

RELATED RATIOS:

#1 - *TIER*: A high TIER combined with a low OTIER could indicate the borrower is relying on non-operating income to meet its TIER and DSC requirements. A low TIER coupled with a high OTIER could indicate that the borrower is losing money on the operation of its subsidiaries.

#8- *ODSC*: Generally if a borrower achieves an acceptable OTIER, the ODSC will be in suitable range.

*Interest on Long-Term Debt shall be increased by 1/3 of the amount, if any, by which the rentals of Restricted Property (Line L3 of Form 7) exceed 2% of Margins and Equities (Line C35 of Form 7).

4) AVERAGE OTIER

Formula: Average of the 2 highest OTIER's of the last 3 years.

This is an extension of OTIER, used in the loan contract. It is the average of the two highest OTIER's during the three most recent years.

Example: 1999 OTIER = 1.26
 2000 OTIER = 1.31
 2001 OTIER = 1.44

Dropping the lowest the average would be
 $(1.31 + 1.44)/2 = 1.38$

The RUS Loan Contract, Article V, Section 5.4, requires RUS borrowers to design rates sufficient to maintain an average OTIER of at least 1.1. It should be understood, however, that RUS expects its borrowers to design and implement rates with a view towards meeting all expenses and achieving satisfactory OTIER ratios every year.

FLAGS: **HIGH** Same as Ratio #3, OTIER
 LOW Same as Ratio # 3, OTIER

RELATED RATIOS

(same as in item NO. 3, OTIER)

5) MTIER (Modified TIER)

RUS Form 7, Part A

Formula: $(A28b+A15b^*-A25b-A26b)/A15b^*$

(Patronage Capital or Margins + Interest on Long-Term Debt – Generation and Transmission Capital Credits – Other Capital Credits and Patronage Dividends)/Interest on Long-Term Debt.

Modified TIER is calculated like regular TIER but excludes non-cash items such as G&T and other capital credits. This gives a more accurate picture of the borrower's ability to repay loan obligations with the margins received during the year from the sale of electric power.

Borrowers are encouraged to design rates based on operating margins rather than net margins.

FLAGS: **HIGH** A high flag in this ratio could indicate that the borrower is earning more than adequate margins to meet mortgage TIER requirements, without relying on non-cash items such as capital credits.

LOW A low flag could indicate that the borrower is not realizing adequate margins. If TIER is acceptable but MTIER is not, the borrower is achieving TIER through G&T capital credits.

RELATED RATIOS:

#1 - *TIER*: By comparing TIER and MTIER, one can see how much the borrower is relying on G&T capital credits to achieve the TIER requirement.

#72 - *Other Interest Income – Other Interest Expense/\$1000 Plant*: Indicates interest income from investments less other interest expense (from short-term lines of credit, etc). Can help determine whether other interest income was a significant portion of the borrower's net margins used in the TIER calculation.

*Interest on Long-Term Debt shall be increased by 1/3 of the amount, if any, by which the rentals of Restricted Property (Line L3 of Form 7) exceed 2% of Margins and Equities (Line C35 of Form 7).

6) DSC (Debt Service Coverage):

Formula: $(A12b+A15b^*+A28b)/(N12d-N1d+RUS\ Debt\ Billed^{**}\ \text{from RUS Debt Files})$;
or

$(\text{Depreciation and Amortization Expense} + \text{Interest on Long-Term Debt} + \text{Patronage Capital or Margins})/(\text{Total Debt Service Billed} - \text{RUS Debt Service Billed} + \text{RUS Debt Service Billed from RUS Debt Billed Files})$.

DSC is a financial coverage ratio indicating the borrower's ability to generate sufficient funds to cover the annual debt service payments on its total long-term indebtedness (principal and interest). In addition, DSC includes G&T capital credits which are non-cash items.

The RUS Loan Contract requires that borrowers maintain a DSC level of at least 1.25.

FLAGS:	HIGH	A high flag probably indicates, relative to other borrowers in the State, that the borrower is generating higher margins and/or is financing a higher proportion of its plant additions with its own funds.
	LOW	A low flag could indicate, that relative to other systems in the State, the borrower is generating less margins and/or is debt financing most of its plant additions.

RELATED RATIOS

#1 - *TIER*: Indicates the borrower's ability to earn sufficient margins to cover its long-term interest expense. Normally, TIER and DSC ratios track each other closely.

#52 - *Accumulated Provision for Depreciation/Utility Plant in Service*: Indicates whether the borrower has set up adequate depreciation reserves on plant assets. It can help identify whether the depreciation and amortization component of the DSC ratio is high or low.

#56 - *Long Term Debt/Total Assets*: Indicates the borrower's total debt load for which it must make regular payments of principal and interest.

#57 - *Interest on Long Term Debt/Average Long Term Debt*: Indicates whether the interest component of DSC ratio is affected by higher cost non-RUS debt.

*Interest on Long-Term Debt shall be increased by $\frac{1}{3}$ of the amount, if any, by which the rentals of Restricted Property (line L3 of Form 7) exceed 2% of Margins and Equities (line C35 of Form 7)

**Debt Service Billed shall be increased by $\frac{1}{3}$ of the amount, if any, by which the rentals of Restricted Property (line L3 of Form 7) exceed 2% or Margins and Equities (line C35 of Form 7)

7) AVERAGE DSC

Formula: Average of the 2 highest DSC's of the last 3 years.

This ratio computes the average of the two highest DSC ratios during the most recent three years.

Example: 1999 DSC = 1.81
 2000 DSC = 1.71
 2001 DSC = 1.69

Dropping the lowest the average would be
 $(1.81 + 1.71)/2 = 1.76$

The RUS Loan Contract, Article V, Section 5.4, requires RUS borrowers to design rates sufficient to maintain an average DSC of at least 1.25. It should be understood however, that RUS expects its borrowers to design and implement rates with a view towards meeting all expenses and achieving satisfactory DSC ratios every year.

FLAGS:	HIGH	A high flag could indicate that the borrower has generated greater margins than most other borrowers in the State to cover the cash requirements of its long-term debt service payments for at least 2 years of the last 3 years.
	LOW	A low flag could indicate that the borrower has generated less margins relative to other systems in the State, and could be a potential loan security risk.

RELATED RATIOS

(same as in item NO. 6, DSC)

8) Operating DSC (ODSC):

Formula: $(A12b+A15b^*+A20b+I2c(a))/(N12d-N1d+RUS\ Debt\ Billed^{**}\ \text{from}\ RUS\ Debt\ Files)$; or

$(\text{Depreciation and Amortization Expense} + \text{Interest on Long-Term Debt} + \text{Patronage Capital and Operating Margins} + \text{Cash Received from a Power Supplier for the Retirement of G\&T Capital Credits} + \text{Cash Received from a Cooperative Lender for the retirement of capital credits})/(\text{Total Debt Service Billed} - \text{RUS Debt Service Billed} + \text{RUS Debt Service Billed from RUS Debt Billed Files})$.

ODSC is a financial coverage ratio indicating the borrower's ability to generate sufficient operating funds to cover the annual debt service payments on its total long-term indebtedness (principal and interest). Although ODSC does not include G&T capital credit allocations it does include the cash received from the power supplier for the retirement of G&T capital credits as well as cash received from a cooperative lender for the retirement of capital credits.

The RUS Loan Contract requires that borrowers maintain a DSC level of at least 1.1.

FLAGS:	HIGH	A high flag could indicate that when compared to other borrowers in the State, the borrower is generating higher margins and/or is financing a higher proportion of its plant additions with its own funds.
	LOW	A low flag could indicate that when compared to other systems in the State, the borrower is generating less margins and/or is debt financing most of its plant additions.

RELATED RATIOS

- #1 - *OTIER*: Indicates the borrower's ability to earn sufficient operating margins to cover its long-term interest expense. Normally, OTIER and ODSC ratios track each other closely.
- #52 - *Accumulated Provision for Depreciation/Utility Plant in Service*: Indicates whether the borrower has set up adequate depreciation reserves on plant assets. It can help identify whether the depreciation and amortization component of the DSC ratio is high or low.
- #56 - *Long Term Debt/Total Assets*: Indicates the borrower's total debt load for which it must make regular payments of principal and interest.
- #57 - *Interest on Long Term Debt/Average Long Term Debt*: Indicates whether the interest component of DSC ratio is affected by higher cost non-RUS debt.

*Interest on Long-Term Debt shall be increased by $\frac{1}{3}$ of the amount, if any, by which the rentals of Restricted Property (line L3 of Form 7) exceed 2% of Margins and Equities (line C35 of Form 7)

**Debt Service Billed shall be increased by $\frac{1}{3}$ of the amount, if any, by which the rentals of Restricted Property (line L3 of Form 7) exceed 2% of Margins and Equities (line C35 of Form 7)

9) AVERAGE ODSC

Formula: Average of the 2 highest ODSC's of the last 3 years.

This ratio computes the average of the two highest ODSC ratios during the most recent three years.

Example: 1999 ODSC = 1.46
 2000 ODSC = 1.51
 2001 ODSC = 1.60

Dropping the lowest the average would be
 $(1.51 + 1.60)/2 = 1.56$

The RUS Loan Contract, Article V, Section 5.4, requires RUS borrowers to design rates sufficient to maintain an average ODSC of at least 1.1. It should be understood, however, that RUS expects its borrowers to design and implement rates with a view towards meeting all expenses and achieving satisfactory ODSC ratios every year.

FLAGS: **HIGH** A high flag could indicate that the borrower has generated greater operating margins than most other borrowers in the State to cover the cash requirements of its long-term debt service payments for at least 2 years of the last 3 years.

LOW A low flag could indicate that the borrower has generated less operating margins relative to other systems in the State, and could be a potential loan security risk.

RELATED RATIOS

(same as in item NO. 6, ODSC)

10) MDSC (Modified Debt Service Coverage):

Formula: RUS Form 7, Parts A& N
(A12b+A15b*+A28b-A25b-A26b)/
(N12d-N1d+RUS Debt Service Billed**from RUS Debt
Service Billed Files)

(Depreciation and Amortization Expense + Interest on Long-Term Debt + Patronage Capital or Margins - Generation and Transmission Capital Credits - Other Capital Credits and Patronage Dividends)/(Total long-Term Debt Service Billed).

As in Modified TIER, Modified DSC is calculated like regular DSC but excludes G&T and other capital credits from the margin component of the calculation. Modified DSC and Modified TIER provide a better measurement of the borrower's ability to generate revenues from operations sufficient to meet its annual principal and interest payments on long-term debt..

FLAGS: **HIGH** A high flag probably indicates that the borrower is generating margins at a level greater than most other systems in the State or that its annual long-term debt payments are lower than most other borrowers in the State.

LOW A low flag probably indicates that the borrower is generating operating margins at a level which is less than most other borrows in the State or that the system's long-term debt as a percentage of its total assets is greater than most other systems in the State.

NOTE: A system within a given State can have a low flag and still exceed RUS's minimum mortgage requirements for DSC..

RELATED RATIOS:

#5 - *Modified TIER*: Except for those systems with very low interest payments, Modified DSC and Modified TIER are both excellent indicators of a borrower's financial condition since both ratios measure the system's actual earnings capability from sales of electricity.

*Interest on Long-Term Debt shall be increased by $\frac{1}{3}$ of the amount, if any, by which the rentals of Restricted Property (Line L3 of Form 7) exceed 2% of Margins and Equities (Line C35 of Form 7).

**Debt Service Billed shall be increased by $\frac{1}{3}$ of the amount, if any, by which the rentals of Restricted Property (Line L3 of Form 7) exceed 2% of Margins and Equities (Line C35 of Form 7).

11) PRR (Plant Revenue Ratio):

RUS Form 7, Part A& C
Formula: $C3/[A1b-(A2b+A3b+A4b)]$

Total Utility Plant/[Operating Revenue and Patronage Capital minus (Power Production Expense + Cost of Purchased Power + Transmission Expense)]

PRR is a measurement of the relative productivity of the plant of a borrower. PRR is an indicator of a borrower's ability to generate revenues relative to the physical plant investment which it has made.

Under 7 CFR Part 1710, if a borrower's PRR exceeds 9.0, then it is required to obtain 10% of its municipal rate financing requirements from a supplemental lender. If a borrower's PRR is between 8.0 and 9.0, it must obtain 20% of its municipal rate financing from a supplemental lender. And if PRR is less than 8.0, the borrower is required to obtain 30% of its municipal rate financing needs from a supplemental lender.

FLAGS: **HIGH** A high flag could indicate that a borrower is not generating adequate margins relative to the cost of plant investment.

LOW A low flag would indicate a more productive plant or a plant that is probably being utilized to its full potential. This could also reflect the fact that the amount of investment in plant is reasonable. A low flag could also indicate high revenues relative to the plant investment.

RELATED RATIOS:

- #25 - *Dist & General Plant/Consumer*: This ratio, if flagged high, could indicate too much plant investment on a per consumer basis.
- #40 - *MWH/Miles of Line*: This ratio indicates the sales per mile of line. A low number in this ratio would indicate that plant is not being utilized to its full capability.
- #48 - *Total Utility Plant/MWH Sold*: A high ratio indicates high plant investment for each kWh of energy sold.

12) EQUITY RATIO %:

Formula: RUS Form 7, Part C
(C35/C28) x 100

(Total Margins and Equities/Total Assets and Other Debits) * 100

The equity ratio measures the extent to which the borrower's consumers have financed plant and other assets as distinguished from assets which were financed with borrowed capital. Equity represents the percentage of total assets that the consumers actually own.

FLAGS: **HIGH** A high equity ratio could mean that the borrower has required very little long-term financing for its plant over the years and that plant has been primarily financed with its own internally generated funds.

LOW A low equity ratio could indicate that the borrower has financed most of its plant with long-term debt capital over the years, investing very little of its own general funds into plant.

RELATED RATIOS:

- #1 - *TIER*: Indicates the ability of the borrower to earn margins sufficient to cover long-term interest expense. TIER levels of 1.25 or greater are needed to remain in compliance with the loan documents.
- #53 - *Net New Plant/Total Utility Plant*: In a fast growing system it is more difficult to build equity.
- #56 - *Long Term Debt/Total Assets*: This ratio measures the proportion of assets, primarily distribution plant, that is financed with debt versus internally generated funds or members' equity.

13) MODIFIED EQUITY RATIO %:

Formula: RUS Form 7, Part C
[(C35-C8)/C28] x 100

[(Total Margins and Equities minus Investments in Associated Organizations-Patronage Capital)/Total Assets and Other Debits] * 100

Modified equity ratio is calculated like the regular Equity Ratio but excludes non-cash items such as G&T and other capital credits. This gives a more accurate picture of the borrower's equity level.

FLAGS: **HIGH** A high flag in this ratio could indicate that the borrower is building equity without relying on non-cash items such as capital credits.

LOW A low flag could indicate that the borrower is not attaining an adequate equity level. If Ratio # 12 (Equity Ratio) is adequate but Modified Equity is low, the borrower is maintaining its equity level through G&T and or other types of capital credits.

RELATED RATIOS:

- #1 - *TIER*: Indicates the ability of the borrower to earn margins sufficient to cover long-term interest expense. TIER levels of 1.25 or greater are needed to remain in compliance with the loan documents.
- #5 - *Modified TIER*: Except for those systems with very low interest payments, Modified TIER is an excellent indicator of the borrower's financial condition since it measures the system's actual earning capability from sales of electricity.
- #12 - *Equity Ratio*: Measures the extent to which the borrower's consumers have financed plant and other assets as distinguished from assets which were financed with borrowed capital. Equity represents the percentage of total assets that the consumers actually own.
- #53 - *Net new Plant/Total Utility Plant*: In fast growing systems it is more difficult to build equity.
- #56 - *Long Term Debt/Total Assets*: This ratio measures the proportion of assets, primarily distribution plant, that is financed with debt versus internally generated funds or members' equity.

14) OPERATING REVENUE/MILE \$:

RUS Form 7, Parts A & B

Formula: A1b/B8b

Operating Revenue and Patronage Capital/Total Miles Energized

This is a measure of the average electric revenue generated from each mile of line that the borrower owns.

When viewing this ratio, MWH/Mile of Line (Ratio #40) needs to be examined. This ratio indicates how many megawatts per mile the system is selling. Borrowers not selling many megawatts per mile, are usually not going to have a large amounts of revenue per mile.

Also, the borrower's System Loss (Ratio #68) should be examined. Generally, the higher the MWH per mile, the lower the system loss.

FLAGS: **HIGH** A high operating revenue/mile ratio could mean that the system has relatively low line mileage (a compact system) over which the system revenues are spread. It could also mean a high revenue producing system, resulting from large power loads or high consumer density.

LOW Low ratios could mean high line mileage over sparsely settled areas with few large revenue-producing loads.

RELATED RATIOS:

- #11 - *PRR*: Indicates the borrower's ability to earn revenues relative to the physical plant investment it has made.
- #22 - *Consumers/Mile (Density)*: High consumers/mile could indicate a metropolitan or highly concentrated residential area.
- #40 - *MWH/Mile of Line (Line Density)*: High MWH/mile could indicate the size of the customers on the system.
- #42 - *Operating Revenue/MWH Sold*: Indicates the borrower's rate levels on a per MWH sold basis.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: Indicates the extent to which large loads contribute to overall system revenues.

15) GENERAL FUNDS/TOTAL UTILITY PLANT %:

RUS Form 7, Part C

Formula: $[(C6+C9+C12+C13+C15+C18)/C3] \times 100$

$[(\text{Nonutility Property (Net) + Investment in Associated Organizations-Other-General Funds + Other Investments + Special Funds + Cash-General Funds + Temporary Investments}) / \text{Total Utility Plant}] \times 100$

Borrowers are encouraged to develop monthly cash flow analyses to plan for seasonal cash shortages, scheduled debt payments, capital credit retirements, etc. An appropriate general funds level depends on the size of the system, cash needs, and construction activity.

FLAGS: **HIGH** A high general funds level may indicate that the borrower has a high level of liquidity and cash.

LOW A low general funds level could indicate inadequate cash reserves.

RELATED RATIOS:

- #16 - *Current Ratio*: Generally speaking, if the general funds ratio is abnormally low, there may be a liquidity problem.
- #19 - *Pat. Cap. Retired/Total Pat. Cap. %*: General funds may be elevated in situations where the borrower is retaining patronage capital rather than retiring it to members on a regular basis.
- #72 - *Other Interest Income – Other Interest Expenses/\$1000 Utility Plant*: This ratio may help to determine if there is an imprudent utilization of cash, low revenues, high construction financing requirements, etc.

16) CURRENT RATIO:

RUS Form 7, Part C
Formula: C25/C52

Total Current and Accrued Assets/Total Current and Accrued Liabilities

Current Ratio is most commonly used as a measure of short-term solvency. Current assets normally include cash, temporary investments, accounts receivable, and inventories. Current liabilities consist of Accounts payable, short-term notes payable, current maturities on long-term debt, accrued income taxes, and other accrued expenses.

A current ratio of less than 1.0 (liabilities are greater than assets) may indicate an imminent cash flow problem.

FLAGS: **HIGH** A ratio between 1.50 and 2.00 would be considered adequate for most operations. A high flag in this ratio could indicate cash and investment levels which are higher than needed as normal reserves for operating contingencies.

LOW A ratio which is flagged low may indicate an imminent cash flow problem. However, a current ratio of 2.00 or greater could be flagged low in some states and should be no cause for alarm.

RELATED RATIOS:

- #15 - *General Funds/Total Utility Plant*: This ratio can help to assess the cash-general funds position of the borrower.
- #63 - *Electric Inventory/Total Utility Plant*: This ratio gives a feel for the level of electric inventory which the system maintains. RUS normally recommends inventory levels no greater than 2% of Total Plant unless special very large construction projects require higher levels.

17) OPERATING MARGINS/RATE BASE %:

RUS Form 7, Parts A, C & F

Formula: $A20b \times 100 / [C5 + F1g + C23 + (12/365 \times A3b) + (45/365 \times (A2b + A4b \text{ thru } A10))]$

Note: In leap years the "365" figure in the above ratio changes to 366.

$(\text{Patronage Capital and Operating Margins} \times 100) / (\text{Net Utility Plant} + \text{Electric Materials and Supplies-Balance End of Year} + \text{Prepayments} + (12/365 * \text{Cost of Purchased Power}) + (45/365 * (\text{Total Operation and Maintenance Expense minus Cost of Purchased Power})))$

This ratio is similar to Ratio #18, Rate of Return on Rate Base, except that interest costs are not included in this ratio. It indicates the earnings which can be used to retire capital credits or reinvest in plant as equity. It eliminates a discrepancy in rate of return between systems with low cost debt and those with higher cost debt.

This ratio is somewhat more comparable from system to system than TIER because there is not the distortion caused by wide variations in equity. Some systems have a TIER level of more than 100, which becomes meaningless. This ratio is based on net plant representing what has been invested to serve consumers. It is also based upon revenues or what that plant has actually earned.

FLAGS: **HIGH** A high flag in this ratio may indicate that a borrower with normal growth and equity is realizing sufficient margins as a percentage of the value of plant.

LOW A low flag in this ratio indicates insufficient margins or low equity.

RELATED RATIOS:

- #5 - *MTIER*: It can indicate whether operating margins are sufficient to meet mortgage requirements.
- #12 - *Equity Ratio*: Low equity borrowers generally have lower operating margins as a percent of rate base.
- #18 - *Rate of Return on Rate Base*: Provides a comparison which uses total margins rather than operating margins.
- #25 - *Dist. & Gen. Plant/Consumer*: Those systems with low plant investment per consumer need a higher rate of return on rate base than those with a higher investment per consumer for the same margins.

18) RATE OF RETURN ON RATE BASE %:

RUS Form 7, Parts A, C & F

Formula:
$$\frac{(A20b+A15b+A16b+A17b+A18b) \times 100}{[C5+Flg+C23+(12/365 \times A3b)+(45/365 \times (A2b+A4b \text{ thru } A10b))]}$$

Note: In leap years the "365" figure in the above ratio changes to 366.

(Patronage Capital and Operating Margins + Interest on Long-Term Debt + Interest Charged to Construction-Credit + Interest Expense-Other + Other Deductions) X 100 / [Net Utility Plant + Electric Materials and Supplies-Balance End of Year + Prepayments + (12/365 X Cost of Purchased Power) + (45/365 (Total Operation & Maintenance Expense minus Cost of Purchased Power))]

The rate base is a value used by regulatory authorities as a basis upon which a utility is permitted to earn a specific rate of return. Most regulatory agencies define the rate base as: total utility plant + materials and supplies + prepayments + 12 days of purchased power cost + 45 days of operating expenses less purchased power cost - contributions in aid of construction - accumulated depreciation.

Various state utility commissions utilize slightly different components in the rate base.

FLAGS: **HIGH** A high flag in this ratio indicates that more than adequate margins are being generated to meet interest and equity requirements of the cost of capital. A high flag could also indicate that the borrower has a low equity position; therefore, a high rate of return is necessary due to higher interest expense.

LOW A low flag indicates either insufficient margins or a borrower with an extremely high equity position.

RELATED RATIOS:

#12 - *Equity Ratio*: High equity borrowers tend to require a lower rate of return due to their lower interest expense. Conversely, low equity borrowers require a higher rate of return due to their higher interest expense.

#17 - *Operating Margins/Rate Base*: Gives the analyst a comparison of the borrower's earning ability based on actual operating margins, rather than net margins.

#57 - *Interest on L. T. Debt/Average L. T. Debt*: The higher this ratio is, the higher the rate of return on rate base needs to be in order to maintain satisfactory financial ratios.

**19) PATRONAGE CAPITAL RETIRED/TOTAL PATRONAGE CAPITAL
(CUMULATIVE) %:**

RUS Form 7, Parts C & I
Formula: $I1cb \times 100 / (I1cb + C35)$; or

Total Patronage Capital Retirements Cumulative X 100/(Total Patronage Capital Retirements Cumulative + Total Margins and Equity).

This ratio indicates the amount of patronage capital that has been retired to the membership as a percentage of Total Margins and Equities on a cooperative's books. It really reflects the overall philosophy which a cooperative has toward capital credits. Most cooperatives operate under established bylaws which, among other things, create a contract between the cooperative and the member for the retirement of patronage capital. Cooperatives may retire capital credits in any of a variety of methods. Among which are (not an all inclusive list): 1) First-In, First-Out, b) Percentage Method, or c) a combination of both. A retirement of patronage capital is legally made when the board passes a resolution to retire and the board action is funded through an accounting entry setting up the retirement as an accounts payable irregardless of when the patronage capital is actually paid to the patrons.

FLAGS: **HIGH** If a ratio is flagged high, this could mean that the cooperative is retiring capital on too short a cycle, which may have a rate impact on existing consumers for the benefit of past consumers.

LOW If this ratio is less than 10 percent the cooperative has probably only made retirements to estates.

RELATED RATIOS:

#12 - *Equity Ratio*: Can indicate whether the cooperative is building equity as part of an equity development plan. A drop in equity level could result from a large retirement of capital credits during a particular year.

#16 - *Current Ratio*: Can indicate whether the cooperative has cash liquidity to retire patronage capital.

20) PATRONAGE CAPITAL RETIRED/NET MARGINS (PRIOR YEAR) %:

Formula: RUS Form 7, Parts A & I
11ca X 100/A28a; or

Total Patronage Capital Retirement-This Year X 100/Patronage Capital or Margins-Prior Year.

The RUS Loan Contract (Article VI, Section 608) requires that if a cooperative's equity is more than 20% but less than 30% (Ratio #12) total retirements of capital credits cannot exceed 25% of prior years margins.

FLAGS: **HIGH** A high flag could mean that a cooperative with low margins in the prior year retired capital credits to either estates, general or a combination using existing general funds, which were generated at least in part from prior year's margins.

LOW A low flag may indicate either no retirements were made or retirements were made only to decedent's estates.

RELATED RATIOS:

#12 - *Equity Ratio*: If equity is above 20 % and below 30% capital credit retirements are limited to 25% of the prior year's margins unless specifically approved by RUS.

#19 - *Patronage Capital Retired/Total Patronage Capital (Cumulative)*: Indicates total cumulative retirements made to date, which reflects the cooperative's philosophy toward capital credit retirements.

Per Consumer (Ratios 21-33)

21) AVERAGE TOTAL CONSUMERS SERVED:

Formula: RUS Form 7, Part O
O10(b)

Average number of consumers receiving service during the year.

FLAGS: N/A

RELATED RATIOS:
NONE

22) CONSUMERS/MILE (DENSITY):

Formula: RUS Form 7, Parts B & O
O10(a)/B8b; or

Total Consumers-December/Total Miles Energized-This Year.

Density, as this ratio is often called, is a measure of the average number of consumers per mile on the borrower's system at a specific point in time. It gives no indication of the type or size of load.

FLAGS: **HIGH** A high density ratio would normally reflect a more compact service territory with towns or villages.

LOW A low ratio would reflect a sparse service territory with few towns or villages.

RELATED RATIOS:

- #14 - *Operating Revenue/Mile:* Indicates the revenue producing capability of the system's average mile of line.
- #40 - *MWH/Mile of Line:* Often referred to as "line density." Indicates the degree of utilization of existing facilities.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold:* Indicates the level of large loads on a system.

23) CONSUMERS/EMPLOYEE:

RUS Form 7, Parts H & O
Formula: O10(a)/H1 or

Total Consumers-December/Number of Full Time Employees.

This ratio tells something of the staffing patterns of a borrower. Smaller borrowers must maintain a minimal number of employees to conduct normal utility operations and will, therefore, generally show a lower number of consumers per employee, while larger systems will generally show a higher number. However, due to different management strategies and the number of services the borrower provides, this number may vary significantly. For example, some borrowers hire contractors for their construction needs, while others use their own crews. RUS usually recommends that borrowers utilize contractors for large projects. Mergers or consolidations usually result in more consumers per employee, resulting in a more efficient use of personnel.

FLAGS: **HIGH** If not associated with a larger system, a high flag could indicate understaffing.

LOW A low flag could indicate excessive staffing levels, if not associated with a smaller system.

RELATED RATIOS:

- #21 - *Average Total Consumers Served:* Will give the analyst an idea of the size of the borrower.
- #30 - *Adm. & Gen. Expense/Avg. Consumer:* Elevated administrative and general expenses could be the result of overstaffing.
- #35 - *Average Rate Per Hour:* Indicates average hourly pay rate for employees.
- #36 - *Overtime Hours/Total Hours %:* Provides insight into the adequacy of staffing levels.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold:* Large power loads often require more employees than residential consumers.

24) LONG TERM DEBT/CONSUMER \$:

Formula: RUS Form 7, Parts C & O
C41/O10(a) or

Total Long-Term Debt/Total Consumers-December

Because most borrowers finance a portion of their assets with long-term debt capital, it is helpful to see each member's share of this long-term debt obligation. Systems with higher debt ratios normally need greater sales and revenues to service the debt. RUS is concerned that systems with high per consumer debt have a viable service area to support the debt repayment.

FLAGS: **HIGH** A high flag could indicate that the borrower's debt load is too high which could impact long-term interest expense, TIER levels, and ultimately, retail rates.

LOW A low flag could indicate a more conservative philosophy with respect to long-term borrowing. Some systems have equity development plans and finance most plant additions from internally-generated funds, rather than from loan funds.

RELATED RATIOS:

- #1 - *TIER*: Excessive long-term debt may make it difficult for a borrower to achieve an adequate TIER level due to high interest expense.
- #12 - *Equity Ratio*: May indicate if the borrower is building equity or if equity is eroding due to higher levels of debt financing for facilities.
- #22 - *Consumers/Mile (Density)*: More sparsely populated areas generally require more debt financing to construct necessary facilities to consumers. This results in higher debt, on a per consumer basis, to provide adequate service.
- #25 - *Distribution and General Plant/Consumer*: Indicates the level of plant investment, on a per consumer basis, which has been financed either through debt or equity capital.
- #56 - *Long Term Debt/Total Assets*: Indicates the percentage of total assets that are debt financed.

25) DISTRIBUTION PLANT & GENERAL PLANT/CONSUMER \$:

RUS Form 7, Parts E & O

Formula: $(E1e+E2e)/O10(a)$; or

$(\text{Distribution Plant} + \text{General Plant})/\text{Total Consumers-December}$

This ratio shows the average amount of investment in distribution and general plant that has been made to serve each consumer. Systems with large number of three-phase loads will tend to be higher because of the more costly three-phase lines required. Those borrowers which have recently made significant system improvements and pole changes will tend to show higher ratios. Also, systems covering large geographic areas with a thin consumer base will show higher plant levels. As with Ratio #24 (Long Term Debt/Consumer), those borrowers with larger ratios need higher per consumer usage and greater revenues to cover fixed costs.

Please note that this ratio does not include generation and transmission investments because they tend to distort the ratio.

FLAGS: **HIGH** A high flag could indicate a rapidly growing system or it could reflect that the borrower is making system improvements too quickly. It could also simply indicate a very low consumer density, or a history of overcapitalized labor.

LOW A low flag could indicate that the borrower is serving a smaller, more compact area, which does not require as much physical plant to reach its consumers. It could also indicate a system with a slow growth rate that does not require any significant amounts of plant replacement.

RELATED RATIOS:

- #22 - *Consumers/Mile (Density)*: Indicates if the borrower's service area is sparsely or densely settled.
- #24 - *Long-Term Debt/Consumer*: Indicates the level of debt burden that is carried by existing consumers.
- #37 - *Capitalized Payroll/Total Payroll %*: A high flag could mean overcapitalization of plant.
- #48 - *Total Utility Plant/MWH Sold*: Another indicator of plant investment on a per MWH basis.
- #49 - *Total Utility Plant/Mile of Line*: Indicates physical plant investment per mile of line. Gives relative comparison to consumer based ratios.

26) NET MARGINS/AVERAGE NO. CONSUMERS SERVED \$:

Formula: RUS Form 7, Parts A & O
A28b/O10(b); or

Patronage Capital or Margins/Average No. Consumers Served

On a year end analysis this figure will show revenue over and above the total cost of providing electric service, either from sales of electricity or non-operating sources such as interest income and non-cash items (G&T capital credit allocations).

FLAGS: **HIGH** A high flag could indicate that rates are higher than necessary. It could also indicate that G&T capital credit allocations or other investment income is very high relative to the number of consumers.

LOW A low flag could indicate that margins are inadequate to meet TIER requirements or the equity goals of the borrower.

RELATED RATIOS:

- #1 - *TIER*: Can indicate whether margins are sufficient to meet RUS loan document requirements.
- #14 - *Operating Revenue/Mile*: Indicates whether the system is producing sufficient revenues per mile of line.
- #15 - *General Funds/Total Utility Plant*: General fund levels can be indicative of the level of investment income affecting margins.
- #16 - *Current Ratio*: Current assets include temporary investments and other investments which affect margins.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: Indicates level of MWH sales to large commercial load which will impact margins.
- #50 - *O&M Expenses/\$1000 Utility Plant*: Can indicate whether the borrower is deferring maintenance in order to build margins in a given year.

27) AVERAGE MONTHLY KWH/AVERAGE NO. RESIDENTIAL CONSUMERS EXCLUDING SEASONAL:

Formula: RUS Form 7, Part O
(O1b(c)/O1a(b))/12; or

(Total kWh sold residential sales (excluding seasonal))/Average number of residential consumers (excluding seasonal) served/12.

The total permanent, year-round residential kWh sales divided by the average number of residential consumers served. This provides a normalized monthly average kWh sold per residential consumer account.

FLAGS: **HIGH** A high flag could indicate that the borrower serves an area where residential consumers have high concentrations of summer air conditioning or winter electric heat requirements. Also, hot summers or very cold winters can affect this ratio.

LOW Many borrowers that serve in areas with moderate or cool climates have lower residential usage. For instance, some systems serving areas with little or no air conditioning or electric heat loads experience very low usage. This ratio can also be affected by the use of other fuels for heating/cooking or a high concentration of natural gas, oil heat, etc.

RELATED RATIOS:

- #28 - *Average Monthly kWh/Avg. No. Residential Consumers:* When compared to ratio #27, can help identify the impact of seasonal consumers on the system's overall usage levels and revenues.
- #39 - *Annual % Change in MWH Sold:* Indicates if overall MWH sales are increasing or decreasing. This may reflect current economic trends in the borrower's service area.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold:* Indicates the volume of total sales that is represented by commercial, industrial and irrigation sales. If the commercial or irrigation percentage is decreasing, this could have a detrimental impact residential rates which in turn, could lead to a decline in residential usage.

28) AVERAGE MONTHLY KWH/AVERAGE NO. RESIDENTIAL CONSUMERS:

RUS Form 7, Part O

Formula: $(O1b(c)+O2b(c))/(O1a(b)+O2a(b))$; or

$(\text{Total kWh sold to residential consumers (excluding seasonals)} + \text{Total kWh sold to seasonal residential consumers}) / (\text{Average no. residential consumers (excluding seasonals)} + \text{Average no. seasonal residential consumers})$.

One of the things that RUS has observed is that a large number of seasonal consumers will impact the system's annual load factor. Depending on the rate structure this can result in inadequate return on plant investment.

FLAGS: **HIGH** A high flag could indicate a strong residential consumer base with a high saturation of air conditioning or electric heat loads to boost usage levels..

LOW A low flag could indicate low saturation levels of electric heat and/or air conditioning loads, all of which could lead to low revenues. This ratio can also be affected by the use of other fuels for heating/cooking or a high concentration of natural gas, oil heat, etc.

RELATED RATIOS:

- #27 - *Average Monthly kWh/Average No. Residential Consumers Excluding Seasonal:* Reflects monthly usage for rural residential consumers excluding seasonal loads. Helps to identify the year-round residential revenue base.
- #39 - *Annual % Change in MWH Sold:* Reflects increasing or decreasing sales levels; reflects general economy or growth of the service area.
- #45 - *Comm. & Indus. & Irr. MWH/Total MWH Sold:* Indicates the impact of commercial, industrial and irrigation sales.
- #67 - *Annual Load Factor:* High levels of seasonal loads could adversely impact load factor.

29) CONSUMER ACCOUNT EXPENSE/AVERAGE NO. CONSUMERS SERVED \$:

Formula: RUS Form 7, Parts A & O
A7b/O10(b); or

Total consumer accounts expense/average number of consumers served. Consumer accounts expense consists of all costs associated with the handling of consumer accounts including material, labor and overhead charges for supervision, meter reading, customer records and collections, clerical work, office supplies, and the write-of of uncollectible accounts.

FLAGS: **HIGH** Consumer accounts can run high due to abnormal write-offs (Ratio #71) which may be the result of a transient population or restrictive State commission rules on disconnects. A high ratio can also mean that special meter reading equipment is being utilized. A borrower's meter reading program is beneficial but increases consumer accounting expense.

LOW A low flag could mean that the borrower has a consumer's self reading and billing program or has a very small billing/consumer accounting department maintaining consumer accounts.

RELATED RATIOS:

- #21 - *Average Total Consumers Served:* Larger systems have significantly lower per consumer expenses.
- #71 - *Accounts Receivable Written Off/Operating Revenue:* High consumer turnover areas can increase uncollectible accounts and, therefore, consumer accounting expense.

30) ADMINISTRATIVE AND GENERAL EXPENSE/AVERAGE NO. CONSUMERS SERVED \$:

Formula: RUS Form 7, Parts A & O
A10b/O10(b) or

Administrative and General Expense/Average No. Consumers Served (Ratio 21)

The total Administrative and General Expense divided by the Average number of consumers. Lower numbers are generally better. However, lower numbers could indicate inadequate attention to the administrative needs of the business.

A&G expenses include: portions of employees' salaries and bonuses, office supplies and expenses, property and casualty insurance, employee pension and benefits, advertising, and board and trustee expenses.

Larger systems in terms of number of consumers, tend to have lower A&G expenses. However, the nature of the consumer has an influence on this expense. One very large consumer might require a significantly higher A&G Expense than a residential consumer.

FLAGS: **HIGH** Smaller systems tend to have higher per consumer A&G expenses. A high flag could also mean that either the borrower is overstaffed, outside consultants' fees are high, or simply that special studies (Management audit, power requirements study, rate study, etc.) were all expensed during a particular year, raising the per consumer ratio.

LOW A low flag could indicate a larger consumer base over which to spread A&G expenses. It could also indicate a situation where employees' salaries and/or benefits are low.

RELATED RATIOS:

- #21 - *Average Total Consumers Served:* Indicates size of the system. Larger systems tend to have lower A&G expenses per consumer.
- #23 - *Consumers/Employee:* Can help to identify possible overstaffing which would raise A&G expenses.
- #35 - *Average Rate Per Hour:* Indicates average hourly pay (including overtime) for employees which would affect overall A&G expenses.

**31) CUSTOMER SERVICE AND INFORMATIONAL EXPENSE/AVG.
NO. CONSUMERS SERVED \$:**

Formula: RUS Form 7, Parts A & O
A8b/O10(b) or

Customer Service and Informational Expense/Average No. Consumers Served
(Ratio #21)

Customer Service and Informational Expense consists of costs of demonstrations and other expenses for the promotion of sales and use of electric energy, including charges for supervision, demonstrating and selling, advertising, printing, postage and office supplies applicable to sales activities. This ratio reflects the system's philosophy of service to its members. In general, systems that spend more money in this area have fewer consumer complaints and greater consumer satisfaction levels.

FLAGS: **HIGH** This may indicate a smaller system with fewer consumers over which to spread customer service expenses. It may also indicate systems conducting special member attitude surveys or public information campaigns to effectuate a consolidation or merger.

LOW Lower ratios would typically be experienced by larger systems with greater numbers of consumers over which to spread costs. Low ratios could also indicate a lack of attention being given to member relations activities which could result in member unrest in connection with future rate hearings, etc. Many borrowers do not have a Statewide magazine or their own individual newsletter to the members, which would result in lower expenses per consumer.

RELATED RATIOS:

(Same as in item No. 30 [A&G Expense/Average Consumer])

32) O&M + A&G + CONS. ACCT. EXP./AVGEERAGE NO. CONSUMERS SERVED \$:

RUS Form 7, Parts A & O

Formula: $(A5b+A6b+A7b+A10b)/ O10(b)$ or

$(\text{Distribution Expense-Operation} + \text{Distribution Expense-Maintenance} + \text{Consumer Accounts Expense} + \text{Administrative and General Expense})/\text{Average No. Consumers Served (Ratio 21)}$

This ratio measures the four major controllable expenses on a per consumer basis. These expense areas provide the greatest opportunities for savings through economies of scale in connection with consolidations.

FLAGS: **HIGH** A high flag here could mean that the system is spending more than normal amounts on maintenance expense due to severe storms, previously deferred maintenance such as right-of-way clearing, tree trimming, etc. It could also mean that the A&G component is elevated due to greater use of outside consultants, high salaries, or overstaffing, high directors fees, regulatory costs for rates cases, etc. Those systems with significant large commercial loads may have higher expenses per consumer, but lower expenses per kWh sold.

LOW A low flag could indicate low salaries for staff, or understaffing, little use of outside consultants or special studies required during the reporting period. Generally, lower numbers are better. However, very low numbers may indicate deferred maintenance or inadequate member relations programs.

RELATED RATIOS:

- #23 - *Consumers/Employee:* Can help ascertain whether the borrower is over or understaffed. Larger systems tend to have lower A&G expenses per consumer.
- #29 - *Consumer Acct. Exp./Average Consumer:* Affects overall A&G component.
- #30 - *Adm. & Gen. Exp./Average Consumer:* Can indicate A&G expense trends which result from staffing levels, salaries, use of outside consultants, etc.
- #34 - *No. of Employees:* Can indicate trends in borrower staffing levels- whether over or understaffed, affecting A&G component.

- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: Can indicate percentage of total sales resulting from large commercial, industrial and irrigation loads. Some large loads may require disproportionately large plant investment requiring greater operation and maintenance expense.
- #50 - *O&M Expense/\$1000 Utility Plant*: Indicates O&M expenditures for past several years, whether deferred maintenance, etc.

33) POWER COST + TAX + DEPR. + INT./AVGERAGE NO. CONSUMERS SERVED \$:

RUS Form 7, Parts A & O

Formula: $(A2b+A3b+A4b+A12b+A13b+A14b+A15b)/O10b$ or

(Power Production Expense + Cost of Purchased Power + Transmission Expense + Depreciation and Amortization Expense + Tax Expense - Property and Gross Receipts + Tax Expense - Other + Interest on Long-Term Debt)/Average No. Consumers Served (Ratio #21)

FLAGS: **HIGH** A High flag here could indicate high power costs which are possibly resulting from a G&T with an expensive new generating plant or escalating fuel costs. In a State where each system's power costs are essentially level, the other components of this ratio could become significant.

LOW A low flag probable indicates a situation where power costs are significantly lower than those paid by other borrowers in the State, possibly due to a different, lower cost G&T or other power supplier.

RELATED RATIOS:

- #44 - *Cost of Power/MWH Sold:* Indicates power costs relative to State median values.
- #51 - *Taxes/ \$1,000 Utility Plant:* Indicates tax expenses relative to State median values.
- #52 - *Accum. Prov. Deprec./Utility Plant in Service:* Indicates depreciation expense accumulated on plant in relation to State median values.
- #59 - *Interest Expense/Operating Revenue:* Indicates percentage of revenue dollar spent on interest expense. This relates to ratios #56 (Long Term Debt/Total Assets) and #57 (Interest on L. T. Debt/Average L. T. Debt).

Employee Related Costs (Ratios 34-37)

34) NUMBER OF EMPLOYEES:

RUS Form 7, Part H, Line H1

The number of full-time employees. This is an actual number, not a ratio, and serves as a measurement of the size of the borrower's staff.

RUS encourages its borrowers to use contractors for large projects to prevent carrying more employees on payroll than needed for normal operations of the system.

FLAGS: N/A

RELATED RATIOS:

- #23 - *Consumers/Employee*: This ratio will give a relative comparison of staffing level of a borrower compared to State and regional staffing levels and can help to determine whether the system is overstaffed or understaffed.
- #36 - *Overtime Hours/Total Hours %*: Excessive overtime can be an indicator of understaffing.

35) AVERAGE RATE PER HOUR \$:

RUS Form 7, Part H
Formula: $(H4+H5+H6)/(H2+H3)$ or

$(\text{Payroll-Expensed} + \text{Payroll-Capitalized} + \text{Payroll-Other}) / (\text{Employee-Hours Worked-Regular Time} + \text{Employee-Hours Worked-Overtime})$

Borrowers in the bottom quartile of their state's pay scales may be underpaying their employees which can adversely affect the system's ability to attract highly qualified people. RUS believes that its borrowers should offer competitive wages in order to build and maintain a quality organization.

The average rate per hour also reflects the economy and relative pay scales of the borrower's service territory.

FLAGS: **HIGH** A high flag in this ratio could indicate that either the borrower's overall pay scales are too high or that too much overtime is being authorized which would drive up the overall average rate per hour. It could also indicate that the borrower is located in a high cost area of the State where pay scales are higher.

LOW A low flag in this ratio could indicate that the borrower is under-paying its employees or that very little overtime was incurred during the reporting period relative to other systems in the State.

RELATED RATIOS:

- #21 - *Avg. Total Consumers Served:* Indicates size of system.
- #23 - *Consumers/Employee:* Can help to identify possible overstaffing.
- #36 - *Overtime Hours/Total Hours %:* Indicates whether excessive overtime was incurred which would raise the average rate per hour. Excessive overtime often results from poor project scheduling or borrowers using their own force account crews for major projects where outside contracting could have been more efficient.
- #69 - *Total Hours Outage/Consumer:* Indicates total outages which could have resulted from storm damage, in part. This could explain high overtime hours for system personnel which would, in turn, raise the average pay rate per hour for that year (Ratio #35).

36) OVERTIME HOURS/TOTAL HOURS %:

RUS Form 7, Part H

Formula: $[H3/(H2+H3)] \times 100$ or

$[\text{Employee-Hours Worked-Overtime} / (\text{Employee-Hours Worked-Regular Time} + \text{Employee-Hours Worked-Overtime})] * 100$

This indicates the number of overtime hours worked relative to the total number of hours worked by the borrower's employees. If a borrower has had a significant number of outages due to severe storms, a higher number of overtime hours will be required to restore service to consumers.

Any significant variances from the State median should be thoroughly investigated to determine the cause(s) for the variance.

FLAGS: **HIGH** A high flag could indicate understaffing in certain areas of the borrower's operation, resulting in high overtime hours. Also, it could indicate that a large number of overtime hours were required in a particular year due to storms or due to accelerated right-of-way clearing or other "catch-up" work related to previously deferred maintenance.

LOW A low flag could indicate overstaffing or, simply, a year in which there were no storm situations requiring overtime hours from the borrower's crews.

RELATED RATIOS:

- #23 - *Consumers/Employee*: Can indicate whether overstaffing or understaffing exists.
- #50 - *O&M Expense/\$1000 Total Utility Plant*: Indicates the level of O&M activity and whether the system has experienced an accelerated O&M program due to previously deferred maintenance.
- #69 - *Total Hours Outage/Consumer*: Can indicate whether large outages, resulting from a storm situation, required the borrower's personnel to work overtime hours.

37) CAPITALIZED PAYROLL/TOTAL PAYROLL %:

RUS Form 7, Part H

Formula: $[H5/(H4+H5+H6)] \times 100$; or

$[\text{Payroll Capitalized} / (\text{Payroll-Expensed} + \text{Payroll-Capitalized} + \text{Payroll-Other})]$
* 100

This ratio compares the percentage of the payroll that is capitalized to the total payroll expense. The majority of employee salaries are expensed as part of the cost of operating and maintaining distribution and transmission plant and are included in the A&G and O&M accounts. The median RUS borrower capitalizes about 24% of total payroll in connection with some form of plant construction activity. RUS has specific work order procedures which outline what levels of salary and related fringe benefits can be capitalized as part of plant construction (See RUS Bulletin 1767B-2).

If a borrower overcapitalizes, it overstates the value of its plant. If it undercapitalizes it understates the value of its plant and reduces the rate base used in rate making.

If there is a significant amount of net new plant being added each year, capitalized payroll will be higher. In addition, if the borrower is adding a large number of new consumers, this ratio will tend to be higher.

FLAGS: **HIGH** A high flag could indicate that the borrower is allocating too great a percentage of salaries to plant construction, which could overstate the actual plant value on the books. RUS recommends that borrowers prepare employee time studies to support higher levels of capitalized payroll.

LOW A low flag could mean that the borrower is not allocating sufficient labor expense to plant construction, which could understate plant values. Also, a low flag may indicate decreased plant construction activity.

RELATED RATIOS:

- #53 - *Net New Plant/Total Utility Plant:* Indicates how much new plant was added during the year. If the borrower is located in a fast growing area and adding significant amounts of new plant, then capitalized payroll will be higher for those high growth years.
- #65 - *Net New Services/Total Services:* Indicates the level of new services being added each year. This is another indicator of system growth which could explain higher capitalized payroll.

MWH Sold (Ratios 38-46)

38) MWH SOLD/1,000:

Formula: RUS Form 7, Part O
O11(c)/1,000,000

Total kWh Sold/1,000,000

A gigawatt hour equals one million watt hours or one thousand kilowatt-hours.
This is an absolute statistical number and not a ratio.

The amount of kWh sold is directly related to the consumer density of the system (Ratio #22) and to the types of loads served over each mile of line, whether primarily residential in nature or commercial (Ratio #45).

FLAGS: N/A

RELATED RATIOS:
NONE

39) ANNUAL % CHANGE IN MWH SOLD %:

RUS Form 7, Part O

Formula: $[(O11(c)-O11(c) \text{ prior year})/O11(c) \text{ prior year}] \times 100$

The percent change in MWH sold from last year to this year. This ratio is a primary indicator of system growth.

Positive growth is generally good; although very high growth (10% or more) for a sustained period can create problems associated with the rapid construction of facilities and the burden of additional interest expense on long-term debt. In addition, the loss of industrial loads could have a negative impact on the change in kWh sold. Weather conditions may have an impact, either positive or negative in a given year.

FLAGS: **HIGH** A high flag, more often than not, indicates the system in a particular State which is located closest to fast-growing metropolitan areas, as compared to the rural areas served by a typical RUS borrower. It could also reflect the addition of a large commercial load during the reporting year or high weather-related usage (irrigation, air conditioning).

LOW A low flag could indicate a system serving a less dense area of the State. It could also reflect the loss of a large commercial load.

RELATED RATIOS:

- #21 - *Avg. Total Consumers Served:* The analyst should look for changes in the number of consumers from year to year.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total WMH Sold:* Could help to indicate if the borrower has lost a major industrial load which could impact overall kWh sales.
- #53 - *Net New Plant/Total Utility Plant:* Indicates the amount of new plant added to the system during the year, which can reflect system growth.
- #65 - *Net New Services/Total Services:* Indicates new consumers added during the year. Ratios #39, #53, and #65 should be viewed together to determine system growth.
- #68 - *System Loss:* Significant changes in system loss, due to extreme storms or other causes, could impact Ratio 39.

40) MWH / MILE OF LINE:

Formula: RUS Form 7, Parts B & O
(O11(c)/B8b)/1,000; or

(Total kWh Sold/Total Miles Energized) / 1,000

Generally, a higher number is better as lower ratios indicate more difficulty in meeting fixed costs, indicating a need for higher charges to meet fixed costs. However, it should be noted that borrowers can have very low MWH sales per mile of line and very healthy financial ratios, with growing equity. In general, the higher the MWH per mile, the lower the line loss will be, indicating a more compact service territory or a higher saturation of large commercial loads.

FLAGS: **HIGH** A high flag could indicate a more compact service territory than other borrowers in the state, serving consumers over fewer miles of line. It could also indicate a higher saturation of large commercial loads than other systems in the state which would normally lead to better load factor and stronger financial ratios.

LOW A low flag could indicate a more sparsely settled service territory, serving existing loads over more miles of line than other borrowers in the state. It could also indicate a lower saturation of large commercial loads which could result in lower annual load factor and weaker financial ratios.

RELATED RATIOS:

- #14 - *Operating Revenue/Mile:* Indicates the revenue-producing potential of the system. Borrowers with low consumer density, but some high load factor commercial loads can have very high revenues per mile of line.
- #22 - *Consumers/Mile (Density):* Indicates number of consumers per mile of line. Helps to identify whether the system is compact or very sparsely settled .
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold:* Indicates the percentage of total sales produced by large commercial, industrial and irrigation loads which could result in higher MWH/Mile of line.
- #67 - *Annual Load Factor:* A higher load factor system (over 50%) would normally indicate more MWH sold per mile of line which could result from high load factor large commercial loads or load management on a primarily residential system.

41) REVENUE/MWH RESIDENTIAL (EXCL. SEASONAL) \$:

RUS Form 7, Part O

Formula: $(O11(c) \times 1,000)/O1b(c)$; or

$(\text{Total Revenue from Residential Sales (excluding seasonal)} \times 1,000)/\text{Total kWh Sold for Residential Sales (excluding seasonal)}$.

Revenue received from permanent non-seasonal Residential consumers divided by kWh's sold to non-seasonal Residential consumers. This can be used to compare overall levels of electric rates among borrowers. It indicates the total revenues received from year-round residential consumers through standard residential rate schedules. If a borrower has different rate schedules for summer and winter usage or for different classes of residential consumers, then this ratio will reflect the total revenue received under all residential schedules for the year.

FLAGS: **HIGH** A high flag would indicate a borrower with residential rates higher than most other systems in the State. This could be caused by higher wholesale power costs or higher distribution costs related to the unique service territory, plant investment, consumer density, and load factor, among other things.

LOW A low flag would indicate a borrower with lower residential rates than most other systems in the State as the result of lower wholesale power costs (different G&T or power supplier) or lower overall distribution costs, or a combination of the two.

RELATED RATIOS:

- #18 - *Rate of Return on Rate Base*: Indicates earnings on rate base as compared to other borrowers in the State and can indicate whether rate levels are adequate.
- #22 - *Consumers/mile (Density)*: Lower density systems require more plant investment/consumer, which could lead to higher residential rates reflected in Ratio #41.
- #25 - *Dist. & Gen. Plant/Consumer*: Indicates plant investment per consumer which would drive rate levels.
- #28 - *Avg. Mo. kWh/Residential Consumer*: Indicates usage levels for residential consumers. Low usage systems, which are primarily residential in nature, have less revenue-producing capability and, often times, require higher rate levels to remain financially viable.
- #44 - *Cost of Power/MWH Sold*: Indicates the level of wholesale power costs, which for RUS-financed systems represents approximately 67% of the borrower's total revenue.

42) OPERATING REVENUE / MWH SOLD (TOTAL SALES) \$:

Formula: RUS Form 7, Parts A & O
A1b/(O11(c)/1,000); or

(Operating Revenue and Patronage Capital / (Total kWh Sold X 1,000))

Operating Revenue divided by total MWH sales. Similar to Ratio #41, (Rev./MWH-Res. Excl. Seas.), this ratio provides a good comparison of overall rate levels between borrowers.

FLAGS: **HIGH** A high flag would indicate that overall rate levels are higher than most other borrowers in the State. This could be caused by higher wholesale power costs, higher overall distribution costs, or a lower percentage of large power loads than other borrowers in the State.

LOW A low flag would indicate lower overall rate levels than most systems in the State which could result from lower wholesale power costs (different G&T or power supplier) or lower overall distribution costs.

RELATED RATIOS:

- #1 - *TIER*: Indicates whether rate levels are adequate to meet RUS loan document requirements for interest coverage.
- #25 - *Dist. & Gen. Plant/Consumer*: Indicates overall plant investment on a per consumer basis which is a primary determinant of rate levels needed to cover fixed costs associated with such plant investments.
- #27 - *Avg. Mo. KWh/Avg. No. Resd. Cons. Excl. Seas.*: Indicates usage levels for residential consumers. Low usage systems, which are primarily residential in nature, have less revenue-producing capability and, often times, require higher rate levels to remain financially viable.
- #41 - *Revenue/MWH (Resd. Excl. Seas.)*: Large differences between Ratios #41 and #42 could indicate that a substantial rate subsidy is occurring.
- #44 - *Cost of Power/MWH Sold*: Because wholesale power costs are the largest part of the borrower's total revenue dollar, they are a significant determinant of rate levels.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: Can help indicate the impact of commercial and irrigation sales on overall system revenues.

43) OPERATING REVENUE LESS COST POWER / MWH SOLD \$:

RUS Form 7, Parts A & O

Formula: $[A1b - (A2b + A3b + A4b)] / (O11(c) / 1,000)$; or

$[\text{Operating Revenue and Patronage Capital minus (Power Production Expense + Cost of Purchased Power + Transmission Expense)}] / [\text{Total kWh Sold} / 1,000]$

Sometimes referred to as the "mark-up" or the "spread." It represents the amount, on a per MWH basis, of the borrower's total revenue which remains after wholesale power costs are paid. This "spread" includes fixed costs, such as long-term interest expense, depreciation and amortization expense, and taxes, all of which are largely fixed in the short run. It also includes expenses which are variable in the short run such as O&M, consumer accounting, and A&G expense, among others. If financial coverage ratios are being met, this "mark-up" can indicate how successfully a system can bring its members low cost service. Generally, borrowers with large industrial loads can operate with a lower spread (or mark-up). Conversely, systems composed primarily of consumers with low energy usage have fewer total kilowatt-hours over which it can spread expenses. Therefore, the spread (or mark-up) for these systems will usually be higher.

FLAGS: **HIGH** A high flag could mean that the borrower has high distribution expenses (described above) or low kWh sales over which to spread distribution expenses. Systems with very low usage levels usually have higher "spreads" due to fewer MWH sales over which to spread costs.

LOW A low flag could mean that the borrower has low distribution expenses or high kWh sales due to high residential usage levels or a high large commercial load saturation which raises overall kWh sales.

RELATED RATIOS:

- #28 - *Av. Mo kWh/Avg. No. Resd. Cons.:* For primarily residential systems, this ratio could explain high/low kWh sales, possibly affecting Ratio #43.
- #32 - *O&M + A&G + Cons. Acctg. Exp./Avg. No. Cons.:* Indicates "variable" expenses in the short run on a per consumer basis compared to other borrowers.. If high, this could explain the high "spread."
- #33 - *Power Cost + Tax + Dep. + Int./Avg. No. Cons.:* Indicates "fixed" expenses in the short run on a per consumer basis. If high, this could explain the high "spread."

#45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: For systems with significant large loads, kWh sales may be higher, affecting Ratio #43.

44) COST OF POWER / MWH SOLD \$:

RUS Form 7, Parts A & O

Formula: $(A2b+A3b+A4b)/(O11(c)/1,000)$; or

$(\text{Power Production Expense} + \text{Cost of Purchased Power} + \text{Transmission Expense}) / (\text{Total kWh Sold} / 1,000)$

This is the cost of wholesale power divided by the total MWH sold. Power costs can vary dramatically from one power supplier to the next. RUS-financed systems generate or purchase power from a variety of sources which causes a wide variance in power costs. RUS distribution borrowers purchase 56% of their power needs from RUS-financed generating plants; 18% is purchased from investor owned utilities and 26% from other public power sources including quasi-government power marketing agencies, such as TVA, Bonneville Power, etc.

Power costs can also vary widely from one distribution borrower to the next in the same state, depending upon the unique operating circumstances and generation blend of the power supplier, and the "mix" of low vs. high cost of power available to the distribution system.

The "peak demands" of two different borrowers, which are both members of the same G&T, can also affect the cost of power through the application of demand charges.

FLAGS: **HIGH** A high flag could mean that the borrower has a low load factor or a high cost source of power compared to other systems in the State.

LOW A low flag could mean low wholesale power costs compared to other systems in the state (different G&T or power supplier) or vary high load factor and annual kWh sales over which to spread power costs.

RELATED RATIOS:

- #33 - *Power Cost + Tax + Dep + Int./Avg. No. Cons.:* Gives a comparative figure for all fixed costs, the greatest of which is power costs.
- #61 - *Cost of Power/ Operating Revenue:* Indicates the percentage of total revenues paid by the borrower for wholesale power. RUS-financed systems spend an average of 67 cents out of each revenue dollar for wholesale power.
- #67 - *Annual Load Factor:* Can help to determine the impact of demand costs on the system's overall cost of power.

45) COMMERCIAL & INDUSTRIAL & IRRIGATION MWH SOLD/ TOTAL MWH SOLD %:

RUS Form 7, Part O

Formula: $[(O3b(c)+O4b(c)+O5b(c))/O11(c)] \times 100$; or

[Total Irrigation kWh sold + Total Commercial and Industrial kWh sold divided by Total kWh sold times 100].

Normally, a higher number is better since commercial and industrial sales provide greater sales volume over which to recover distribution costs. In those cases where the predominance of sales results from one or two large power loads, there is a vulnerability to the borrower if one of those loads should leave the system.

RUS borrowers are primarily residential in nature, with over 90% of consumers and 60% of MWH sales attributable to residential loads. RUS encourages its borrowers to develop marketing strategies, rate structures and member relations programs to attract and preserve large loads as a means of fully utilizing the systems capability. This ratio combines small and large commercial and irrigation sales which are reported separately on RUS Form 7.

FLAGS: **HIGH** A high flag indicates a system with a high saturation of commercial and industrial loads compared to other systems in the State. It could also indicate a system with predominantly irrigation sales.

LOW A low flag may indicate a system with a low saturation of commercial and industrial loads compared to other borrowers in the State.

RELATED RATIOS:

#40 - *MWH/Mile of Line*: Indicates the degree to which present system is being utilized. High MWH/Mile of Line usually results from a high saturation of large commercial loads on the system.

#43 - *Operating Revenue Less Cost of Power/MWH Sold*: A higher percentage in Ratio #45 should be accompanied by a lower Ratio # 43.

#67 - *Annual Load Factor*: Indicates the percentage of time that the borrower's distribution facilities are fully utilized. High annual load factors usually result from a high concentration of large commercial loads on the system which, individually, have high load factors.

46) O&M + A&G + CONS. ACCT. EXP./ MWH SOLD \$:

RUS Form 7, Parts A & O

Formula: $(A5b+A6b+A7b+A10b)/(O11(c)/1,000)$; or

(Distribution Expense-Operations + Distribution Expense-Maintenance + Consumer Accounts Expense + Administrative and General Expense)/(Total kWh divided by 1,000).

This ratio measures the four controllable expenses on a per MWH sold basis. These expense areas provide the greatest opportunities for savings through economies of scale in connection with consolidations.

FLAGS: **HIGH** A high flag could mean that the system is spending more than normal amounts on maintenance expenses due to severe storms, previously deferred maintenance such as right-of-way clearing, tree trimming, etc. It could also mean that the A&G component is elevated due to greater use of outside consultants, high salaries, overstaffing, high directors fees or regulatory costs for rate cases, etc. Additionally, a high flag may result from low sales per consumer miles of line, or a system with a low number of commercial loads.

LOW A low flag could indicate low salaries for staff, or understaffing, little use of outside consultants or special studies required during the reporting period. Generally, lower numbers are better. However, very low numbers may indicate deferred maintenance or inadequate member relations programs. A low flag may also result from high sales per consumer or mile of line and a high number of commercial loads.

RELATED RATIOS:

- #27 - *Avg. Monthly kWh/Avg. No. Resid. Cons. Excl. Seasonal:* Reflects monthly usage for permanent rural residential consumers. Helps to identify year-round residential revenue base.
- #29 - *Cons. Acct. Exp./Avg. No. Consumers:* Affects overall A&G component.
- #30 - *Adm. & Gen. Exp./Avg. No. Consumers:* Can indicate A&G expense trends which result from staffing levels, salaries, use of outside consultants, etc.
- #32 - *O&M + A&G + Cons. Acct. Exp./Avg. No. Consumers:* Indicates variable expenses in the short run on a per consumer basis as compared to other borrowers.

- #40 - *MWH/Mile of Line*: Often referred as “line density”. Indicates utilization of existing facilities.
- #42 - *Operating Revenue/MWH Sold*: Indicates the borrower’s rate levels on a per MWH sold basis.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: Can indicate percentage of total sales resulting from large commercial, industrial and irrigation loads. Some large loads may require disproportionately large plant investment requiring greater operation and maintenance expense.
- #50 - *O&M Expense/\$1000 Utility Plant*: Indicates O&M expenditures for past several years, whether deferred maintenance, etc.

Plant Investment (Ratios 47-55)

47) TOTAL UTILITY PLANT / 1,000 \$:

Formula: RUS Form 7, Part C
C3/1,000; or

Total Utility Plant/1,000

Total Utility Plant (TUP) is an absolute number expressed in thousands of dollars to indicate the size of the plant. It is not a ratio.

TUP consists of all distribution, transmission, and general plant including intangible plant, production plant, transmission plant, distribution plant, and general plant. Along with electric plant in service, TUP includes electric plant purchased or sold (or leased to others), other utility plant (gas, railway, etc.), and nuclear fuel items. TUP also consists of all incomplete construction work that is currently underway by the borrower, including expenditures on research, development, and demonstration projects for construction of utility facilities.

FLAGS: N/A

RELATED RATIOS:
NONE

48) TOTAL UTILITY PLANT / MWH SOLD \$:

Formula: RUS Form 7, Parts C & O
C3/(O11(c)/1,000); or

Total Utility Plant / (Total kWh Sold/1,000)

This ratio indicates the plant investment required to serve all loads. Lower numbers are more favorable since less of a mark-up is required to meet fixed costs. Low monthly usage will result in higher plant investment per kWh sold. Conversely, those systems with high average usage levels will usually experience a lower investment per kWh sold.

FLAGS: **HIGH** A high flag could indicate over-investment in plant or it could mean that the borrower has a service territory with low kWh sales, resulting from low consumers usage and/or low saturation of large commercial loads.

LOW A low flag usually indicates a borrower with high kWh sales, resulting from high average residential usage levels, greater density, and/or high saturation of commercial loads.

RELATED RATIOS:

- #22 - *Consumers/Mile (Density)*: Indicates more or fewer consumers over which to spread plant investment. Generally systems with a greater density have lower plant investment per MWH.
- #25 - *Dist. & Gen. Plant/Consumer*: Indicates plant investment per consumer. Helps to identify systems with possible over-investment in plant.
- #28 - *Avg. Mo. kWh/Avg. No. Residential Consumers*: Indicates usage levels for residential consumers. Low usage systems tend to have higher plant investment/MWH sold.
- #40 - *MWH/Mile of Line*: Indicates greater or lesser MWH over which to spread plant investment.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: Indicates saturation of large commercial and/or irrigation loads which could result in higher kWh usage levels, resulting in lower plant investment per kWh sold.
- #47 - *Total Utility Plant/\$1,000*: Indicates actual plant investment compared to other borrowers in State, Area, and County.

49) TOTAL UTILITY PLANT / MILE OF LINE \$:

Formula: RUS Form 7, Parts B & C
C3/B8b or

Total Utility Plant / Total Miles Energized

This ratio indicates the total investment in utility plant per mile of line. This is a reflection of the type of area served by the borrower, the characteristics of the loads served and consumer density.

FLAGS: **HIGH** A high flag in this ratio could indicate a system serving an area around or in a fast-growing metropolitan area where density is high, perhaps requiring heavier construction with three-phase facilities, rather than a spread-out, rural service area where density is low. It could also indicate a system with a high percentage of commercial and industrial loads.

LOW A low flag could indicate a system serving in a less dense area in the State.

RELATED RATIOS:

- #22 - *Consumers/Mile (Density)*: Indicates whether plant investment is driven by density. Generally, plant per mile is higher for systems with higher density.
- #24 - *Long-Term Debt/Consumer*: Indicates level of debt resulting from plant investment.
- #25 - *Dist. & Gen. Plant/Consumer*: Systems covering large geographic area with a thin consumer base will show a higher plant investment to serve those sparsely settled areas.
- #40 - *MWH/Mile of Line*: Often referred to as "line density," indicates the utilization of existing facilities.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: Indicates the level of large loads on the system. Some larger loads may require disproportionately large plant investment requiring greater operation and maintenance expenses.
- #48 - *Total Utility Plant/ MWH Sold*: Indicates total plant investment on a per MWH Sold basis, which offers a different perspective than Ratio #49.

50) O&M EXPENSE/\$1,000 TOTAL UTILITY PLANT \$:

Formula: RUS Form 7, Parts A & C
(A5b+A6b)/(C3/1,000); or

(Distribution Expense-Operations + Distribution Expense-Maintenance)/(Total Utility Plant /\$1,000)

This ratio measures the costs to operate and maintain the electric system. It should be noted that the RUS mortgage (Article III, Section 3.12) requires borrowers to maintain their systems in good condition.

FLAGS: **HIGH** A high flag may indicate that the borrower has incurred extraordinary expenses for that year possibly due to storm repair, URD cable failures, heavy tree growth, and rough terrain, or that the system is catching up on previously deferred maintenance.

LOW A low flag may indicate that the borrower is not spending sufficient funds on maintenance of its system, that the system is relatively new requiring less maintenance, and/or that O&M expenses are not being charged to the proper accounts.

RELATED RATIOS:

- #47 - *Total Utility Plant/\$1,000*: The borrower may have considerable plant to maintain which was originally financed by member contributions. This plant investment is not included in this ratio.
- #52 - *Accum. Prov. Deprec./Utility Plant in Service*: Those systems with high accumulated depreciation to total plant will generally have much older plant that requires more maintenance.
- #69 - *Total Hours Outage/Consumer*: Higher outage levels may be an indicator that past attention to O&M has been inadequate.

51) TAXES/\$1,000 TOTAL UTILITY PLANT \$:

RUS Form 7, Parts A & C
Formula: (A13b+A14b)/(C3/1,000); or

(Tax Expense-Property and Gross Receipts + Tax Expense-Other)/(Total Utility Plant/\$1,000)

This is an uncontrollable expense for the borrower. Large variations exist from state to state in the amount of taxes paid due to each state's unique tax code regarding utilities. RUS borrowers pay local, State, and property taxes, but most are exempt from Federal income taxes. It should be noted that Public Power Districts and Public Utility Districts do not pay property taxes.

Note: The Federal Tax Code provides for an exemption for cooperative-type organizations, "but only if 85 percent or more of total income consists of amounts collected from members for the sole purpose of meeting losses and expenses". The 85 percent member revenue criteria can become critical for systems with significant non-member sales and could even jeopardize the tax exempt status of the system.

FLAGS: **HIGH** A high flag could indicate a higher tax structure for the service area.

LOW A low flag could indicate lower tax structures in counties and municipalities served.

RELATED RATIOS:

NONE

52) ACCUMULATED PROVISION FOR DEPRECIATION/UTILITY PLANT IN SERVICE%:

Formula: RUS Form 7, Part C
(C4/C1)*100; or

(Accumulated Provision for Depreciation and Amortization/Utility Plant in Service) X 100

This ratio measures the adequacy of a borrower's annual depreciation rates, and is indicative of the age of a distribution system. Whether the reserve is adequate or deficient is based, not only on the depreciation rate applied to the various plant accounts, but also on plant growth rate and the amount of plant retirements.

FLAGS: **HIGH** A high flag could mean that the system is over depreciating its plant which would result in an under-valuation of plant, thereby understating the rate base, or it could be an indicator of an older system.

LOW A low flag could mean that the system is under depreciating part or all of its plant which could, in turn, over-value net plant and overstate the rate base, or it could be an indicator of a system with significant amounts of newer facilities.

RELATED RATIOS:

#33 - *Power Cost + Tax + Depr. + Int./Avg .No. Consumers:* This ratio includes expenses which are largely fixed over the short run, including depreciation expense, on a per consumer basis.

53) NET NEW PLANT/TOTAL UTILITY PLANT%:

RUS Form 7, Part E

Formula: $[(E9b-E9c+E9d)/E9a] \times 100$; or

$[(\text{Total Utility Plant Additions}-\text{Total Utility Plant Retirements} + \text{Total Utility Plant Adjustments})/\text{Total Utility Plant Balance Beginning of the Year}] \times 100$

This ratio measures the rate of growth in plant during a particular year. Such growth could result from new consumers, including large power loads, coming on the system, or from increased energy demands from existing loads on the system. Contributions-in-aid-of-construction are not reflected in plant additions. It should be noted that plant additions will often lag new consumers by a year or two, due to each system's unique construction and financing cycle.

FLAGS: **HIGH** A high flag could indicate that substantial facilities have been built to serve loads or that major system improvements have been made.

LOW A low flag may indicate that the system has experienced little or no growth and has not required significant plant additions relative to other systems in the State.

RELATED RATIOS:

#21 - *Avg. Total Consumers Served:* A review should be made of the past years' consumer changes to determine whether new consumer connects have resulted in plant additions.

#39 - *Annual % Change in MWH Sold:* Another indicator of growth which may require new plant investment to address increased kWh sales.

#65 - *Net New Services/Total Services:* This ratio will normally parallel Ratio #53 except where major plant additions are needed for system improvements or to serve large power loads.

54) GENERAL PLANT/TOTAL CONSUMERS \$:

RUS Form 7, Parts E & O
Formula: E2e/O10(a); or

General Plant Balance End of Year/Total Consumers-December

This ratio indicates the level of support facilities needed to supply adequate service. Normally, a lower ratio is better than a higher ratio, since it means lower fixed costs. However, the lower ratios may be the result of older, less reliable line and office equipment, which may increase operating costs. Larger systems should have lower ratios. This ratio will vary widely among the borrowers depending on the unique conditions of their service areas. Borrowers with transmission systems to operate and maintain will generally have higher ratios because of the additional equipment and vehicles required. Also, systems with lower consumer density require additional branch service offices and communications equipment to service remote portions of their system.

FLAGS: **HIGH** A high flag may reflect a smaller system which has fewer consumers over which to spread its general plant investment. Also, a high investment per consumer may indicate a borrower that has more line maintenance equipment and/or office space than necessary.

LOW A low flag may reflect a system with a large consumer base over which to spread its general plant investment. It could indicate a compact service territory with no district offices, or need for service equipment to cover outlying areas. It may indicate older headquarters facilities and the need to remodel or build a new headquarters.

RELATED RATIOS:

- #21 - *Average Total Consumers Served:* Smaller systems generally have higher general plant/consumer.
- #22 - *Consumers/Mile (Density):* Indicates the need for more line maintenance equipment per consumer if density is lower.
- #55 - *Headquarters Plant/Total Consumers:* A direct relationship exists between headquarters plant investment and general plant investment.

55) HEADQUARTERS PLANT-BALANCE END OF YEAR/TOTAL CONSUMERS \$:

Formula: RUS Form 7, Parts E & O
E3e/O10(a); or

Headquarters Plant Balance End of Year/Total Consumers-December

Similar to Ratio #54 (General Plant/Total Consumers), but measures only the headquarters component of general plant. Borrowers with newer headquarters facilities will tend to have a higher investment per consumer.

FLAGS: **HIGH** A high flag could indicate a borrower that has recently constructed and/or modernized facilities, or it could indicate a borrowers serving more remote areas, requiring additional service buildings and personnel.

LOW A low flag may indicate a borrower with older office and warehouse facilities, or it could indicate a system in the State with more consumers over which to spread headquarters plant investment.

RELATED RATIOS:

- #21 - *Average Total Consumers Served:* Generally, systems with a large number of consumers have lower headquarters plant investment per consumer.
- #22 - *Consumers/Mile (Density):* Can help to identify whether the amount of headquarters and warehouse facilities are related to the density of the system.

Long-Term Debt (Ratios 56-58)

56) LONG TERM DEBT/TOTAL ASSETS %:

Formula: RUS Form 7, Part C
(C41/C28) x 100; or

(Total Long-Term Debt/Total Assets and Other Debits) * 100

This ratio measures the proportion of assets that are financed through debt as opposed to internally generated funds. This ratio includes all long-term debt (RUS and supplemental lenders) used to finance utility plant in service. Systems that operate on a non-profit basis generally have higher debt ratios than do investor owned utilities.

A high ratio indicates a greater risk for the lender for several reasons. Financial ratios, such as TIER and DSC, are more difficult to meet. Also, the borrower has less options to combat financial stress or a downturn in business. It should be noted that a higher ratio could limit a borrower's access to outside financing because equity is a primary criterion outside lenders use when considering loan approvals.

FLAGS: **HIGH** A high ratio indicates a borrower with a higher percentage of long-term debt compared to other systems in that State, which could be the result of rapid growth, low consumer density or major system rebuilding.

LOW A low flag may indicate a borrower with higher equity levels which has financed plant with internally generated funds.

RELATED RATIOS:

- #12 - *Equity Ratio*: The equity ratio is sometimes referred to as net worth, because it measures the extent to which the borrower has self-financed its plant and other assets as distinguished from borrowed capital.
- #22 - *Consumers/Mile (Density)*: Lower density systems normally require more plant investment per consumer which may result in higher debt financing.
- #24 - *Long-Term Debt/Consumer*: Indicates the debt load each consumer is carrying on an individual basis in comparison to other RUS systems.
- #25 - *Dist. & Gen. Plant/Consumer*: Indicates plant investment per consumer which could have been debt financed.

57) INTEREST ON LONG-TERM DEBT/AVERAGE LONG-TERM DEBT %:

RUS Form 7, Parts A & C

Formula: $[A15b/(C41+C41 \text{ prior year})/2] \times 100$; or

$[\text{Interest on Long-Term Debt}/(\text{Total Long-Term Debt} + \text{Total Long-Term Debt Prior Year})/2] \times 100$

This ratio is often referred to as the “blended” interest rate. It measure the cost of borrowed funds, both RUS and supplemental. Moreover, this ratio is a component of fixed cost. The lower this ratio, the better. Normally, the lower the “blended” rate, the lower the interest expense will be.

FLAGS: **HIGH** High ratios may indicate more recent plant expansion and a larger proportion of supplemental debt to total debt. It could also indicate significant amount of 100% outside financing.

LOW A low flag would indicate less supplemental or non RUS financing in proportion to total debt.

RELATED RATIOS:

- #12 - *Equity Ratio*: Measures the extent to which the borrower has self-financed plant and other assets through internally-generated funds as distinguished from assets financed through debt. Systems with higher average debt cost should analyze the causes to determine whether more internally generated funds should be invested in plant to build equity and reduce interest costs per consumer.
- #56 - *Long-Term Debt/Total Assets*: Measures proportion of assets that are financed through debt as opposed to internally generated funds.
- #58 - *RUS Debt/Total Long-Term Debt*: Measure proportion of RUS direct and guaranteed loans to long-term debt.
- #59 - *Interest Expense/Operating Revenue*: Generally, the more non-RUS debt a borrower has, the higher the “blended” rate will be.

58) RUS DEBT / TOTAL L.T. DEBT %:

RUS Form 7, Part C

Formula: $[(C36+C37+C38+C39)/C41] \times 100$; or

$[(\text{Long-Term Debt-RUS (Net)} + \text{Long-Term Debt-RUS-Economic Development (Net)} + \text{Long-Term Debt-FFB-RUS Guaranteed} + \text{Long-Term Debt-Other RUS Guaranteed}) / \text{Total Long-Term Debt}] * 100$

Measures the proportion of RUS debt to total long-term debt. Since RUS debt has less related interest expense, the system is not required to earn as much margins in order to meet mortgage TIER and DSC requirements; therefore, a higher ratio would result in lower overall interest costs.

FLAGS: **HIGH** A high flag may indicate that the borrower has relied primarily on RUS financing for construction needs and not on supplemental or other financing sources.

LOW A low flag could indicate that the borrower has very little outstanding 100% RUS debt remaining or that it has substantial amounts of 100% outside financing.

RELATED RATIOS:

#65 - *Net New Service/Total Service*: Indicates the level of new services being installed each year. Another indicator of growth which could result in greater need for RUS loan funds.

Revenue (Ratios 59-61)

59) INTEREST EXPENSE / OPERATING REVENUE %:

RUS Form 7, Part A

Formula: $[A15b+A16b)/A1b] \times 100$; or

$[(\text{Interest on Long-Term Debt} + \text{Interest Charged to Construction-Credit}) / \text{Operating Revenue and Patronage Capital}] * 100$

This ratio measures the percentage of revenue which is used to pay interest on long-term debt. For the short term, this represents a fixed cost, and the lower the better.

It should be noted that, in the short-term, borrowers have minimal control over interest expense. However, over the long-run, a borrower can implement a policy on equity development which may lead to less long-term borrowing; therefore, less revenue requirements to cover interest expense.

FLAGS: **HIGH** Newer and faster growing systems usually have higher ratios, although systems which lose loads and related revenues will experience higher ratios. The higher this ratio, the harder it is to meet TIER.

LOW A low flag may indicate that the system is not experiencing rapid growth, therefore reducing the need for long-term financing. In addition, the borrower may be using general funds to finance construction projects.

RELATED RATIOS:

- #1 - *TIER*: Measures the borrower's ability to repay its long-term debt.
- #12 - *Equity Ratio*: Indicates the portion of total assets financed with internally generated funds. Generally, higher equity systems have a lower Ratio #59.
- #53 - *Net New Plant/Total Utility Plant*: Measures the growth of the borrower's plant.
- #56 - *Long Term Debt/Total Assets*: Indicates the degree to which the borrower is financing projects with general funds versus debt capital.
- #65 - *Net New Services/Total Services*: Indicates system growth which may require debt financing, affecting interest expense in the long run.

60) INTEREST EXPENSE / OPERATING REVENUE LESS COST OF POWER %:

RUS Form 7, Part A

Formula: $[(A15b+A16b)/(A1b-(A2b+A3b+A4b))] \times 100$; or

$[(\text{Interest on Long-Term Debt} + \text{Interest Charged to Construction-Credit}) / (\text{Operating Revenue and Patronage Capital minus (Power Production Expense} + \text{Cost of Purchased Power} + \text{Transmission Expense})] \times 100$

This ratio measures the percentage of revenue less the cost of power available to pay interest on long-term debt.

FLAGS: **HIGH** Newer and faster growing systems usually have higher ratios, although systems which lose loads and related revenues will experience higher ratios. The higher this ratio, the harder it is to meet TIER.

LOW A low flag may indicate that the system is not experiencing rapid growth, therefore reducing the need for long-term financing. In addition, the borrower may be using general funds to finance construction projects.

RELATED RATIOS:

- #1 - *TIER*: Measures the borrower's ability to repay its long-term debt.
- #12 - *Equity Ratio*: Indicates the portion of total assets financed with internally generated funds. Generally, higher equity systems have a lower Ratio #60.
- #44 - *Cost of Power/MWH Sold*: Indicates actual average power cost per MWH for the system.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: Indicates whether the borrower has significant commercial, industrial or irrigation loads which tend to shift the percentage of overall costs towards power cost.
- #53 - *Net New Plant/Total Utility Plant*: Measures the growth of the borrower's plant which may result in increased future long-term debt.
- #56 - *Long Term Debt/Total Assets*: Indicates the degree to which the borrower is financing projects with general funds versus debt capital.
- #65 - *Net New Services/Total Services*: Indicates system growth which may require debt financing, affecting interest expense in the long run.

#67 - *Annual Load Factor*: Can identify those systems which have established a high peak demand upon which a portion of their wholesale power bill is based. A lower annual load factor would increase the cost of power as a percentage of revenue.

61) COST OF POWER / OPERATING REVENUE %:

RUS Form 7, Part A

Formula: $[(A2b+A3b+A4b)/A1b] \times 100$; or

$[(\text{Power Production Expense} + \text{Cost of Purchased Power} + \text{Transmission Expense}) / \text{Operating Revenue and Patronage Capital}] * 100$

Measures the percentage of revenue used to purchase wholesale power. For most RUS-financed systems, this ratio represents about 2/3 or the borrower's total costs of providing electric service. Although power costs are generally considered uncontrollable over the long run, they are somewhat controllable for members of a G&T organization in that they can influence the power supply decisions made by the G&T's board of directors, ultimately affecting power costs. A small savings in the cost of power at the G&T level can generate substantial benefits to the ultimate distribution system consumer. Systems with larger percentages of commercial and industrial sales generally have higher values for this ratio.

FLAGS: **HIGH** A high flag could mean that the borrower has a poor annual load factor where the borrower has established a very high peak demand for that year (upon which its wholesale power billings are based) but has very low annual kWh sales over which to spread its power costs. It could also indicate a system with significant commercial and industrial load which tends to raise power costs.

LOW A low flag could indicate a system with a high annual load factor or a system with very few large commercial loads.

RELATED RATIOS:

- #44 - *Cost of Power/MWH Sold*: Indicates actual average power costs per MWH sold for the system.
- #45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: Indicates whether the borrower has significant commercial, industrial or irrigation loads which tend to shift the percentage of overall costs towards power costs.
- #67 - *Annual Load Factor*: Can help identify those systems which have established a high peak demand upon which a portion of their wholesale power bill is based. A lower annual load factor would increase cost of power as a percentage of revenue.

Operating (Ratios 62-72)

62) ELECTRIC INVENTORY TURNOVER:

RUS Form 7, Part F
Formula: $F1d / [(F1a + F1g) / 2]$

(Electric Materials and Supplies Used (Net)) / [(Electric Materials and Supplies-Balance Beginning of Year + Electric Materials and Supplies-Balance End of Year)/2]

A high turnover ratio indicates that the borrower is minimizing the expense of maintaining inventory; whereas a low ratio indicates that the borrower is incurring expenses to maintain inventory for lengthy periods of time. Systems with higher growth rates tend to have higher inventory turnover ratios. A low inventory turnover may reflect excessive overall inventory levels or significant amounts of obsolete materials still on hand.

FLAGS: **HIGH** A high flag may indicate a system with a high growth rate or low inventory levels.

LOW A low flag may indicate a system with a low growth rate excessive inventory levels.

RELATED RATIOS:

#53 - *Net New Plant/Total Utility Plant:* An indicator of the growth in new additions to the system.

#63 - *Electric Inventory/Total Utility Plant:* An indicator of the amount of inventory held in stock for future construction projects. Higher inventories result in more expense for warehousing and overhead charges.

63) ELECTRIC INVENTORY / TOTAL UTILITY PLANT %:

RUS Form 7, Parts C & G

Formula: $(F1g/C3) \times 100$; or

$(\text{Electric Materials and Supplies-Balance End of Year} / \text{Total Utility Plant}) * 100$

A measure of non productive assets. Systems should try to minimize inventory levels consistent with their unique construction programs. Money which is tied up in inventory does not draw interest as would cash, nor does it produce revenue as would plant. The cost of carrying inventory is 30% or more of the cost of the material. This includes the cost of capital, space, obsolescence, deterioration, and inventory maintenance.

FLAGS: **HIGH** High inventory levels could mean that the borrower is stockpiling supplies too far in advance of scheduled construction projects. However, systems with significant amounts of transmission and substation facilities often have higher inventory levels. Similarly, systems located in storm-prone areas may need to stockpile certain materials for special needs.

LOW Low inventory levels could mean that the borrower is not maintaining sufficient electric supplies to complete routine scheduled force account construction, pole replacements, etc.

RELATED RATIOS:

#62 - *Electric Inventory Turnover:* Measures the efficiency of the borrowers' material purchase system.

The three following ratios give ideas of construction activity and load growth in service areas which require higher inventory levels.

#39 - *Annual % Change in MWH Sold:* Represents the percent change in kWh sold from last year to this year. This ratio is a primary indicator of system growth.

#64 - *Construction W.I.P./Plant Additions:* Measures the efficiency of the accounting system for most distribution systems.

#65 - *Net New Services/Total Services:* Indicates new consumers added during the year.

64) CONSTRUCTION WORK IN PROGRESS / PLANT ADDITIONS %:

Formula: RUS Form 7, Part E
(E8e/E7b) x 100; or

(Construction Work-In-Progress - Balance End of Year / Plant Additions - This Year) * 100

This ratio is a measure of the construction work-in-progress that has not been closed out compared to the total construction closed out for the year. Also, this ratio can indicate high growth systems which may have significant work-in-progress at year-end or a system where the work orders are not being closed out in a timely manner. Occasionally, there will be a large project that will carry over into another year and distort this ratio.

Since the construction work-in-progress status is at the end of the year, it can vary widely from year to year, depending on whether projects are closed out at that time. Also, the ratio is highly affected by the number of large projects that are in progress that have not been completed at year-end. A review should be made of the work order process of the borrower to determine whether the borrower is behind

FLAGS: **HIGH** A high flag will most likely indicate that the borrower has a large project(s) uncompleted or not closed out by year-end. The latter of these may indicate accounting problems which should be questioned.

LOW A low flag may indicate that new construction activity is slow as evident by the new plant additions. It could also indicate that the borrower closes out work orders promptly upon completion.

RELATED RATIOS:

#53 - *Net New Plant/Total Utility Plant:* The yearly increase in plant should be reviewed for an indicator of plant growth and the level of activity on construction work.

#65 - *Net New Services/Total Services:* Changes in new member services will generally result in work order construction and parallel changes in work in progress.

65) NET NEW SERVICES / TOTAL SERVICES %:

RUS Form 7, Part B

Formula: $[(B1b-B2b)/B3b] \times 100$; or

$[(\text{New Services Connected-This Year minus Services Retired-This Year}) / \text{Total Services in Place-this Year}] \times 100$

Measures the growth in services during the year.

FLAGS: **HIGH** A high ratio would indicate a fast growing system.

LOW A low ratio indicates that new service connections are substantially reduced and/or that the borrower has retired a large number of services.

RELATED RATIOS:

- #21 - *Avg. Total Consumers Served:* This gives the analyst an idea of the size of the borrower. In addition, one can compare the present year with previous years to obtain an idea of how much the system has grown.
- #39 - *Annual % Change in MWH Sold:* Dependent on the class of new services, this ratio may show up as affected by the net change in new services. Generally, an increase in new services will result in a related increase in MWH sold.
- #53 - *Net New Plant/Total Utility Plant:* the changes in new services will most likely affect this ratio.
- #66 - *Idle Services/Total Services:* If this ratio is high, it could indicate a loss of customers and a change in the load characteristics of the system.

66) IDLE SERVICES / TOTAL SERVICES %:

Formula: RUS Form 7, Part B
(B4b/B3b) x 100; or

[Idle Services (Exclude Seasonal)-This Year / Total Services in Place-This Year]
* 100

Lower ratios are better, although there may be some lower limit. Higher ratios indicate loss of customers, a change in the load characteristics or failure to retire old services. The borrower should evaluate its line extension policy and removal practices in addressing the need to reduce high percentages of idle services. The borrower must still maintain idle services. If a pole or conductor is broken on an idle service, it must be replaced and these costs are spread to the cost of service for the remaining active consumers. These costs of maintaining idle facilities in place and their salvage value while waiting for the load to return must be considered by the borrower.

Moreover, if the borrower is taxed on plant investment, it is paying needless taxes. Also, idle services provide opportunity for additional line loss and outages creating a liability while in place.

FLAGS: **HIGH** A high flag could result from a high percentage of oil and irrigation loads which are highly affected by the market and/or weather conditions. High idles could also result from the borrower not having an effective board policy or procedures for disconnects and removal of services.

LOW Low idle service percentages could result from an effective member disconnect policy.

RELATED RATIOS:

#45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold:* If this class of consumers includes a high percentage of oil and/or irrigation loads, the borrower's idle services could radically change with market and/or weather conditions.

#65 - *Net New Services/Total Services:* May indicate whether a borrower has a program to retire idle services.

#68 - *System Loss:* System losses are affected by the level of idle services. High idles can increase system loss.

67) ANNUAL LOAD FACTOR %:

RUS Form 7, Part O

Formula: $[(O15(c)+O16(c)+O18(c))/(O19(c) \times 8760)] \times 100$; or

Note: In leap years the figure “8760” in this ratio becomes “8764” (this is the number of hours in the year).

$[(\text{Total kWh Purchased} + \text{Total kWh Generated} + \text{Interchange kWh-Net})/(\text{Peak-Sum all kWh Input (metered)} \times 8760)] \times 100$

This is an overall measure of plant efficiency. Load factor indicates the average demand placed on the system as a percentage of the maximum or peak demand. Higher load factors are generally better. Borrowers average a 50% load factor. Investor Owned Utilities average over 60% load factors due primarily to their higher concentrations of commercial and industrial loads. Some systems have an inherently poor load factor due to the profiles of their consumer base. The lower the percentage of commercial and industrial sales, usually the lower the load factor. It should be noted, however, that some large commercial loads may have poor annual load factors. Also, irrigation loads (which are included with Commercial and Industrial loads in Ratio #45 on the BSP) usually have poor load factors.

FLAGS: **HIGH** A high annual load factor will generally indicate that the borrower is serving a higher proportion of commercial and industrial loads than other systems in the state.

LOW Borrowers with a low load factor are under-utilizing their facilities. Certain types of commercial and industrial loads create a low load factor. Low load factors may also be caused by a high percentage of seasonals or extreme weather conditions.

RELATED RATIOS:

#45 - *Comm. & Indus. & Irr. MWH Sold/Total MWH Sold*: This ratio can indicate the extent of commercial, industrial and irrigation loads on the system and a possible correlation with the load factor.

Comparing the difference between the following two ratios will indicate the amount of seasonal loads:

#27 - *Avg. Monthly kWh/Avg. No. Residential Consumers Excluding Seasonal*: Indicates year-round residential usage.

#28 - *Avg. Monthly kWh/No. Residential Consumers*: Includes seasonal loads as well as year-round residential. If Ratio #28 is substantially below Ratio #27 the system has a large number of seasonal loads and load factor is usually lower.

68) SYSTEM LOSS %:

RUS Form 7, Part O

Formula: $[1 - ((O11(c) + O14(c)) / (O15(c) + O16(c) + O18(c)))] \times 100$; or

$[1 - ((\text{Total kWh Sold} + \text{kWh Own Use}) / (\text{Total kWh Purchased} + \text{Total kWh Generated} + \text{Interchange-kWh-Net}))] \times 100$

Measures electricity purchased but not sold or otherwise accounted for. The lower the percentage loss the better. Lost kWh sales translate into additional expense for the system which must be spread among the consumers. Systems with 14.4KV tend to have lower loss rates than 7.2KV systems. The more megawatt hours sold per mile, the lower the percentage of line loss. Therefore, system loss is usually directly related to system density.

FLAGS: **HIGH** A high flag could indicate poor right-of-way clearing, or a need for system improvements (i.e., larger conductors and higher voltage levels).

LOW Borrowers with low system losses most likely will be utilizing their facilities more efficiently due to higher consumer density, systematic right-of-way reclearing programs and adequate voltage levels. Also, it may reflect a very large load which is served without loss, in which case, the borrower should compute losses without the large load.

RELATED RATIOS:

- #22 - *Consumers/Mile (Density):* Normally, higher density systems have lower percentage of line loss as compared to low density systems.
- #40 - *MWH/Mile of Line:* The systems that deliver more MWH over the line will most likely have lower losses.
- #44 - *Cost of Power/MWH Sold:* When the borrower's cost of power is high, there are more economic advantages to reducing the losses.

69) TOTAL HOURS OUTAGE/CONSUMER:

Formula: RUS Form 7, Part G
G1e; or

Total Service Interruptions-Present Year

Measures system reliability. A system must adequately maintain existing plant in order to ensure service reliability. RUS recommends no more than 5 hours outage per consumer per year. If the five-year average outage exceeds 5 hours per consumer per year from all causes, an analysis of the cause for the outages needs to be undertaken. A corrective action plan should be initiated and approved by the board of directors. The borrower should review its system protection schemes, maintenance practices, right-of-way clearing, and pole inspection programs. If the major cause of outages is due to the power supplier, the borrower should initiate discussions with its power supplier in an effort to reduce excessive outages on the system.

FLAGS: **HIGH** Total outages per consumer per year greater than five, can indicate that the system is experiencing a reliability problem or has experienced major storms or other disasters.

LOW A low flag can be indicative of a highly reliable system; however, an unusually low level should be investigated as to whether the outages are being properly reported and whether accurate data is being maintained by the borrower.

RELATED RATIOS:

- #50 - *O&M Expense/\$1000 Utility Plant:* A decline in this ratio or low flag coupled with high outages may indicate deferred right-of-way clearing or other maintenance expense.
- #40 - *MWH/Mile of Line:* The systems that deliver more MWH over the line will most likely have lower losses.

70) ACCOUNTS RECEIVABLE OVER 60 DAYS / OPERATING REVENUE %:

RUS Form 7, Parts A & J
Formula: $(J1/A1b) \times 100$; or

(Amount Due From Customers for Electric Service Over 60 Days/Operating Revenue and Patronage Capital) * 100

This ratio provides a measure of credit problems and accounting practices. Since, over time, past due electric bills from consumers become more difficult to collect, the larger this ratio the greater chance for a loss or eventual write-off. A higher ratio may indicate poor accounting procedures in that uncollectible accounts are not written off in a timely fashion. Also, a high ratio may indicate the need for a more aggressive board policy on collections.

While the stability of the membership is a key factor influencing past-due accounts, the general economy of the service area is also an important factor, which relates to the ability of the consumers to pay their electric bill when due.

FLAGS: **HIGH** A high flag could mean that the borrower has no board policy on collection of past due accounts or has not established a procedure for effectively implementing such a policy. High flags could also indicate a system serving a more transient consumer base, such as more suburban areas.

LOW A low flag could mean that the borrower has a board policy on collections and an aggressive collections procedure. It could also indicate a very stable membership where the turnover rate is low.

RELATED RATIOS:

- #64 - *Construction W.I.P./Plant Additions*: A high Ratio #64 may indicate poor accounting practices if Ratios #70 and #71 are also high.
- #65 - *Net New Services/Total Services*: Helps identify consumer turnover rate which affects past-due accounts.
- #71 - *A/R Written Off/Operating Revenue*: Indicates whether the borrower has a successful collections program for amounts due over 60 days.

71) ACCOUNTS RECEIVABLE WRITTEN OFF / OPERATING REVENUE %:

RUS Form 7, Parts A & J

Formula: $(J2/A1b) \times 100$; or

$(\text{Amount Due From Consumers for Electric Service Written Off During Year} / \text{Operating Revenue and Patronage Capital}) * 100$

This ratio is an indicator of the effectiveness of the borrower's credit and collection policies and practices. The lower the ratio the better. Most RUS-financed systems set up, on a monthly basis, an estimated amount of their total monthly revenue, as a bad debt reserve for uncollectible accounts (**credit** customer accounts receivable, **debit** bad debt reserve). Then, at year-end, the borrower adjusts these estimated amounts to reflect the actual uncollectibles to be written off. Amounts unlikely to be collected should be written off on a timely basis. Many systems do not have aggressive board policies for collection of delinquent accounts.

FLAGS: **HIGH** A high flag could indicate a system with no board policy and/or procedures covering collection of delinquent accounts. It could also reflect a system with a very transient consumer base, such as a system near a military base or large metropolitan area.

LOW A low flag could indicate a system with a very strong board policy and procedures on collections. It could also indicate a system with a very stable, low turnover, membership. However, a very low Ratio #71 may, in fact, indicate where uncollectibles are not being written off on a timely manner.

RELATED RATIOS:

#70 - *A/R Over 60 Days/Operating Revenue*: Indicates level of delinquent accounts at year-end in relation to total revenues. A significant number of these may prove uncollectible, depending on collection procedures, etc.

**72) OTHER INTEREST INCOME LESS OTHER INTEREST EXPENSE / \$1,000
UTILITY PLANT:**

Formula: RUS Form 7, Parts A & C
(A21b-A17b)/(C3/1,000); or

(Non Operating Margins-Interest minus Interest Expense-Other) / (Total Utility Plant/1,000)

Measures the effectiveness of the borrower's short-term investment program or cash management program. A borrower with low general funds levels will normally have a lower ratio in this category.

It should be noted that this ratio includes all income received from investments less short-term interest expense which results primarily from lines of credit loans from CFC, CoBank or other banks, and used by borrowers for short-term operating expenses. A system may have adequate margins under accrual accounting but poor cash flow during the year, resulting in a low Ratio #72.

FLAGS: **HIGH** A high flag would normally reflect a system with high general funds levels. Normally, such a system would have large amounts of temporary investments (RUS Form 7, Part C, Line 18) which result in significant interest income.

LOW A low flag could indicate a system with inadequate margins. Or it could indicate a system with adequate general funds but with significant short-term interest expense resulting from outstanding amounts on lines of credit.

RELATED RATIOS:

- #1 - *TIER*: Indicates level of earnings (margins) in relation to long-term interest expenses. Borrowers with higher TIER levels are generating more general funds which would normally result in higher investments and interest income levels.
- #15 - *General Funds/Total Utility Plant*: Systems with higher general funds levels will have higher short-term investments, which generate higher levels of interest income.
- #16 - *Current Ratio*: Indicates current cash liquidity position of a system. Current assets include cash and temporary investments. A high current ratio indicates a system where current assets greatly exceed current liabilities, indicating that current cash and investments far exceed notes and accounts payable which may be payable within 12 months.