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THE SURPLUS FUNDS OF RURAL ELECTRIC COOPERATIVES: A CASE STUDY

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THE SURPLUS FUNDS OF RURAL ELECTRIC COOPERATIVES: A CASE STUDY

CHAPTER I

INTRODUCTION

Since 1935 a large amount of effort has been expended to provide electric power for the rural areas of the United States. Beginning in that year, and continuing to the present time, the federal government has sponsored a program the goal of which is to make electricity available to as much of the rural population as desires it. The support of the program by the government has largely taken a form in line with its capacity as financier. Through an agency of the Department of Agriculture, the Rural Electrification Administration,[1] funds have been made available for the construction of rural power lines. These funds have been made available through long-term loans to organizations interested in supplying electricity to the rural areas.

The major portion of federal funds that have been

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[1]The abbreviation, REA, will be used generally throughout this study to refer to the Rural Electrification Administration.

made available for the rural electrification program has been loaned to rural electric cooperatives. These organizations are owned and operated in the traditional cooperative fashion, that is, the consumers of the electric service are the owners of the power distribution systems. In addition to loaning funds to the rural electric cooperatives, the federal government has acted in the capacity of an advisor on problems related to management and engineering practices.

Since the federal government began its support of rural electrification, much progress has been made toward supplying an adequate amount of electric power to the rural areas of the American economy. The extent of the progress has been a result of the efforts of the rural electric cooperatives and the commercial power companies. On June 30, 1954, more than ninety percent of all farms in the United States were served with central station electric power as contrasted with approximately ten percent in 1935.[2]

The Purpose and Scope of This Study

Over the past several years the rural electric cooperatives have experienced an accumulation of a surplus in the general cash fund. The purpose of this study is to examine the operations of the cooperatives relative to the

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[2]U.S. Department of Agriculture, Report of the Administrator of the Rural Electrification Administration (Washington: Government Printing Office, 1940), p. 352; and U.S. Department of Agriculture news release dated October 1, 1954.

sources and uses of the surplus. It is hoped that the value of such a study as this will be to point up the operational policies that result in the accumulation of a surplus, the reasons such policies have been adopted, and to indicate the uses to which the surplus should be put.

The study includes a brief history of the development of the rural electrification program, but the detailed examination of the operations of the cooperatives is limited to sixteen rural electric cooperatives located in Oklahoma. These sixteen cooperatives were used because their records were adequate, and because the data furnished by them were complete for the period covered. The period covered in the detailed examination is from 1947 through September 30, 1952. The beginning date was determined by the adequacy and comparability of the data. The records of many of the cooperatives were not complete for the years prior to 1947. Also, prior to 1947 the classification of the items on the records of the cooperatives was not the same as that used in subsequent years. The final date covered by the data was the end of the last month prior to the collection of the data.

The Collection and Compilation of the Data

The data that relate to the rural electrification program over the whole nation were taken from various reports published by the United States Government Printing Office, Washington, D. C. The data for all of the rural

electric cooperatives in Oklahoma were taken from the same reports. There are two primary reports published annually that contain both summary and detailed data on the functional and financial operations of the rural electric systems financed by the Rural Electrification Administration. These two reports are: (1) Annual Statistical Report, REA, published during the early part of the second year following the latest year for which the data are included; and (2) Report of the Administrator of the Rural Electrification Administration, published during the latter part of each calendar year, and contains primarily the data for the preceding fiscal year. The data in the former report are on a calendar year basis, and each annual report summarizes the data for every year of operations of the Rural Electrification Administration.

The data on the operations of the sixteen Oklahoma cooperatives were obtained from the records of individual cooperatives. Each rural electric cooperative submits several monthly reports to the Rural Electrification Administration. The three reports that contain the data used in this study are: (1) the Balance Sheet, (2) the Statement of Operations, and (3) the REA Loan Fund Transactions. The latter report is submitted as a supplement to the Balance Sheet, and contains a summary of the transactions with the REA that affect the long term debt account on the Balance Sheet.

The writer visited each cooperative to obtain the data from the above three reports. The data from each cooperative were then checked for errors and omissions. When errors or omissions were discovered, the particular cooperatives were contacted by letter and requested to check their records against the data obtained by the writer. The personnel of the rural electric systems were very cooperative, and it was possible in all cases to discover the nature of the errors and make the necessary corrections. The data from the sixteen Oklahoma cooperatives were then combined into three consolidated reports corresponding to the three reports from which data on each cooperative had been obtained. These consolidated reports were then used to compile subsidiary tables to be used in an analysis of the operations of the cooperatives.

During the visit to each cooperative the writer interviewed the manager and other personnel to obtain information not shown in the three reports mentioned above. The data on the various types of investment by the cooperatives and the amounts and dates of storm damage to the cooperatives, were not available in the reports, but were obtained by interviews. The personnel of the cooperatives were also contacted, either by letter or by a personal visit by the writer, at each time there was a problem in the interpretation of the details of the data contained in the reports. In addition to the above contributions, the personnel of the

cooperatives provided the writer with much information on the background and development of the rural electrification program in Oklahoma.

The writer obtained much general information on the organizational structure and methods of operations of the rural electric systems through attendance at various district, state, and regional meetings of the managers of these cooperatives. Problems that were common to the cooperatives were discussed at these meetings, and the expressions of opinions by the various managers regarding the possible solutions to the problems served as a source of information for use by the individual managers. The meetings indicated to the writer that the exchange of views and information is important for the successful operation of the rural electric cooperatives. These meetings also revealed to the writer some of the problems faced by the cooperatives, and the way in which the problems are approached.

Information on the evolution of the views of the federal government toward rural electrification was made available by the office of the Administrator of the Rural Electrification Administration. The office of the Administrator also made available to the writer a compilation of the administrative policies of the REA, along with a detailed outline of the accounting system used by the rural electric cooperatives. This information served the dual purpose of bringing the whole of the rural electrification program into

perspective, and made possible the analysis of the accounting system used by the cooperatives.

The Plan of the Study

The central problem of this study is to trace the flow of funds through the rural electric cooperatives in order to indicate the sources and uses of the surplus funds that have been accumulated by these organizations. Since the analysis of this problem is confined to the operations of a small number of REA cooperatives, the amount of the surplus funds accumulated by all of the REA cooperatives in the nation cannot be indicated. A general idea of the size of the surplus accumulated by all of the REA cooperatives in the nation can be obtained from a comparison of the operational data of the sixteen Oklahoma cooperatives with the operational data of all of the REA cooperatives in the nation. In order that the reader may be able to make this comparison, Chapter II presents the parallel growth of rural electrification in Oklahoma and the nation as a whole. The chapter also provides the reader with a general view of the historical development of the program.

Chapter III contains the data obtained from the sixteen Oklahoma cooperatives. The three consolidated reports (the balance sheet, the statement of operations, and the REA loan fund transactions) are presented, and the various items in each are explained. A fourth table, an application of

funds statement, is also included in this chapter, and shows the financial condition of the cooperatives. The tables in this chapter contain the basic data used in the analysis of the operations of the cooperatives.

The operations of the REA cooperatives are examined in Chapter IV. An analysis of the operating expenses of the cooperatives is used to point up the general pattern of operations, and to indicate the major items of expense. For the purpose of comparison, the major items of expense are presented for all REA borrowers in the nation, for all REA borrowers in Oklahoma, and for the sixteen Oklahoma cooperatives. It is through this comparison that some of the important factors affecting rural electrification are indicated.

In Chapter V the term "surplus" is defined as the amount by which the flow of funds into the cooperatives from operations exceeds the amount of payments currently required. The accounting system used by the cooperatives is explained briefly, followed by the evidence that indicates the existence of a surplus. The evidence of the existence of a surplus includes the amount of working capital possessed by the cooperatives, the fact that payments have been made to the REA before they were due, and the fact that the cooperatives have paid for some construction projects with funds that are derived from the sale of electric service.

The flow of funds through the cooperatives is traced

in Chapter VI. In order to trace this flow of funds as it is related to the surplus as defined in the preceding chapter, it was necessary to view the operations of the REA cooperatives as divided into two distinct areas. One of these areas relates to the flow of funds into the cooperatives as the result of loans from the REA. The other area is related to the flow of funds into the cooperatives from the purchase and resale of electric power. By the use of a modified form of the application of funds statement, it was possible to identify the sources and uses of the funds that result from the purchase and resale of electric power. This separation made it possible to identify the surplus of funds that has resulted from the functional operations of the cooperatives, as contrasted with the funds held by the cooperatives as the result of loans from the REA.

The reasons for the accumulation of a surplus, as expressed by the managers of the cooperatives, are enumerated in Chapter VII. These reasons are examined in relation to the administrative policies of the REA that make it necessary to accumulate a surplus. In Chapter VIII the uses that the cooperatives have made of the surplus funds are indicated, and the advantages and disadvantages of the various uses are listed. Chapter IX, the final chapter, includes a summary and the conclusions.

CHAPTER II

THE LEGAL AND ECONOMIC DEVELOPMENT OF THE RURAL ELECTRIFICATION PROGRAM

On the National Level

Legal Development

The Rural Electrification Program was inaugurated by Executive Order 7037 on May 11, 1935, under authority of the Emergency Relief Appropriation Act of 1935.[1] The program began as part of the general relief program during the first administration of President Franklin D. Roosevelt. Funds amounting to $100,000,000 were made available through the Reconstruction Finance Corporation.[2]

Since the Rural Electrification Administration (REA) came into being as a relief agency, the general pattern of its activities was largely determined by the framework of regulations and rulings formulated in connection with

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[1]U.S. Department of Agriculture, REA, Rural Electrification Act of 1936 with Amendments as Approved to November 1, 1949 (Washington: Government Printing Office, 1951), foreword.

[2]H. S. Person, "The Rural Electrification Administration in Perspective," Agricultural History, XXIV (April, 1950), 70.

previously existing relief agencies. The staff of the REA was unable to formulate satisfactory plans for building electric systems employing grants-in-aid, and many of the regulations prescribing the operations of relief agencies tended to obstruct the development of a program that required a relatively large number of specialized skills. Consequently on August 7, 1935, the President issued Executive Order 7130, which freed the REA from many of these regulations and established the REA as a lending agency.[3]

Statutory provision for the agency was made in the Rural Electrification Act of 1936, approved May 20, 1936. This Act established the general framework within which the REA was to function, and limited the existence of the agency to ten years. Title V of the Department of Agriculture Organic Act of 1944 liberalized the terms of the loans made by the REA and removed the time limitation from the program. In 1949 the Rural Electrification Act was further amended to authorize the REA to make loans for the purpose of promoting rural telephone service.[4]

Accomplishments of the Program

The purpose of the Rural Electrification Act was to make available on the farm an adequate supply of low cost

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[3]Person, op. cit., pp. 71-73.

[4]U.S. Department of Agriculture, REA, op. cit., foreword.

electricity. Electricity on the farm serves the dual purpose of making available to the farm home the electrical appliances present in urban homes, and at the same time making available a source of power for use in farm operations. The former increases the comfort and efficiency of the farm household, and the latter increases the efficiency of the farm as a productive unit.

Thus the provision of electricity on the farms has meant more than stringing a pair of thin copper wires across the rural areas. The program of rural electrification has had as its goal more than providing proper and efficient lighting for the farm home, for it has also aimed at providing an additional source of energy that could be used in the production of agricultural commodities. These two aspects of the uses to which electricity has been put on the farm indicate the nature of the revolution that has been wrought by the coming of electric power to American farms. The nature of a part of the revolution is expressed by Senator George D. Aiken of Vermont in the introduction to the book, The Farmer Takes a Hand, by Marquis Childs. Senator Aiken writes as follows:

> Millions of farm boys will never know what it is like to bump their heads on a stable beam in pitch-darkness. Millions of farm girls will never know the experience of bending over an old-fashioned zinc-covered washboard.
>
> The young folks of today will never have these experiences so common to their parents for the simple reason that the stable is now brilliantly lighted by the flip of a switch, and the old-fashioned washtub

and scrubbing board have been permanently relegated to the junk pile on most farms.[5]

In carrying on the business end of farm life electric power is becoming an important factor in increasing the efficiency and profitableness of the enterprise. A farmer in Ohio may set up a conveyor belt that carries newly harvested potatoes through automatic scrubbers and driers, preparing the product for the retail market without the need for further processing. The Virginia tobacco farmer is able to increase his net income through the use of automatic electric controls on tobacco curers. Hay can be lifted into the barn as soon as it is cut and then dried with electric fans. Peach growers in Arkansas are using electrically operated sprayers, conveyors, graders, and defuzzers to help them market a top grade of peach. The dairy farmer finds indispensable to his operations electric milkers, water pumps, water heaters, refrigeration, and cream separators. The poultry farmer finds extensive use for electric incubators, brooders, water pumps and heaters, fans for ventilation, and pickers and waxers for processing broilers.[6]

The extent to which rural electrification has come about since the establishment of the REA can be indicated

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[5]Marquis Childs, The Farmer Takes a Hand (Garden City, New York: Doubleday and Company, Inc., 1952), p. 19.

[6]A paraphrase of material contained in Childs, op. cit., pp. 232-234.

from the statistical information available on the program (Table 1). Between 1935 and 1954 the farms served with electric power increased from 12 percent of total farms to 92 percent.[7] During the first full year of operation of the program REA borrowers connected over 7,500 customers, and by the end of fiscal year 1954 the total number of consumers served had increased to almost 4,200,000. From 1940 to 1954 the power distributed by the REA systems increased from 436 million to over 16 billion kilowatt-hours annually. This increase has been the result of two factors, the increase in the number of consumers served and an increase in the amount of electricity used by each consumer. The average monthly consumption per farm consumer increased from 75 kilowatt-hours in 1944 to 184 kilowatt-hours by the end of 1952.

The REA Cooperative

Electricity has been brought to the rural areas of America through the efforts of over one thousand business organizations. Nearly one thousand of these organizations

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[7]The reduction in the percentage of farms receiving electric service in fiscal year 1951 results from the use of 1945 census data for the 1950 computation and the 1950 census data for the 1951 computation. The 1950 census shows a reduction of 478,200 farms from the census of 1945. This reduction was due to a change in the census definition of a farm, and also to consolidations of farm units and changes in land use during the intervening years. The change in definition was such that many suburban residences previously classified as farms were eliminated from the 1950 Census of Agriculture. Since practically all of these were served with electric power the percentage of the farms remaining that were served with electricity was necessarily smaller.

TABLE 1

SELECTED DATA ON ALL REA BORROWERS, ANNUALLY, 1935-1954[a]

Calendar Year (1)	Percent of Farms Electrified[b] (2)	Consumers Connected (Thousands) (3)	Power Input (Millions of KWH) (4)	Average Monthly KWH Consumption Per Farm Consumer (5)
1935	11.6	0	0	0
1936	12.3	8	n.a.	n.a.
1937	16.8	44	n.a.	n.a.
1938	19.1	176	n.a.	n.a.
1939	22.1	436	n.a.	n.a.
1940	27.1	674	n.a.	n.a.
1941	34.9	902	724	n.a.
1942	38.3	1,012	1,151	n.a.
1943	40.3	1,088	1,679	n.a.
1944	42.0	1,217	1,926	75
1945	45.7	1,409	2,136	86
1946	52.9	1,684	2,477	92
1947	61.0	2,046	3,398	105
1948	68.6	2,518	4,757	120
1949	78.2	3,040	6,227	130
1950	86.3	3,413	7,779	146
1951	84.0	3,666	9,738	165
1952	88.1	3,858	11,534	184
1953	90.8	4,025	13,755[d]	n.a.
1954	92.3[c]	4,176[d]	16,500[d]	n.a.

[a]Source: Data in columns (2) and (5) from U. S. Department of Agriculture, Report of the Administrator of the REA, for the respective years (Washington: Government Printing Office, 1940-1954), various pages; data in columns (3) and (4) from U. S. Department of Agriculture, REA, Annual Statistical Report, 1953 (Washington: Government Printing Office, 1955), p. XV.

[b]Data are for fiscal years, and include farms provided electric power by REA borrowers and commercial power companies.

[c]United States Department of Agriculture, news release dated October 1, 1954.

[d]United States Department of Agriculture, news release dated January 11, 1955.

Note: n.a. means data not available.

are of the cooperative type established expressly for the purpose of distributing electricity to rural customers, and in a few cases for the additional purpose of generating and/or transmitting electric power to the distributing systems. The organization of these cooperatives is based on the Rochdale principles.[8]

An REA cooperative is a voluntary organization of farmers for the purpose of providing themselves with electric power. Each member of the cooperative pays a membership fee of about five dollars, which amount is returned to the member upon his withdrawal from the organization. Upon payment of the membership fee an individual becomes eligible

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[8]The basic principles of the cooperative type of business organization are considered to have evolved from the principles upon which the Rochdale Society of Equitable Pioneers was established in Rochdale, England in 1844. The principles considered to indicate the nature of the cooperative include the following: (1) unrestricted membership on a voluntary basis; (2) one vote per member regardless of the number of shares of ownership; (3) goods are to be sold at the prevailing local market price; (4) a fixed rate of interest to be paid on shares, and this payment to have first claim on the profits; (5) the remaining surplus to be distributed in accordance with purchases; and (6) trade to be conducted on a strictly cash basis.

Additional principles of the cooperative type of organization and information on the development of the cooperative movement can be obtained from practically any textbook of economic principles or consumer economics. The following references contain extended discussions of the cooperative type of business organization: Paul Hubert Casselman, The Cooperative Movement and Some of Its Problems (New York: Philosophical Library, Inc., 1952), pp. 1-14; Marquis W. Childs, Sweden: The Middle Way (New Haven: Yale University Press, 1936), pp. 1-13; Philip Taft, Movements for Economic Reform (New York: Rinehart and Company, Inc., 1950), pp. 535-546; and Leland J. Gordon, Economics for Consumers (2d ed.; New York: American Book Company, 1944), pp. 356-403.

to receive electric service from the cooperative and is accorded the rights and privileges of other members in the determination of the policies of the organization. Each member has one vote on all matters submitted to the membership.

The authority for establishing the policies of the cooperative rests with a Board of Trustees elected by and from the membership at the annual meeting of the members. The number sitting on the Board varies between cooperatives, but bears some relation to the size of the organization. The term of office is for one, two, or more years, or as specified in the by-laws of the cooperative. The officers of the Board consist of a President, a Vice-President, a Secretary, and a Treasurer, all chosen from the membership of the Board. The members of the Board serve without remuneration, but provision is usually made for the reimbursement of expenses incurred in the service of the cooperative.

The policies of the cooperative are carried out by a manager appointed by the Board. The manager may or may not be a member of the cooperative, and he draws a regular salary determined by the Board. The manager is on the job at all times. The Board performs its duties at regular monthly meetings and at special meetings called by the President.

The REA cooperatives are owned and operated by the membership of the individual cooperative. The funds

necessary for the construction of the electric systems are borrowed from the federal government. Each cooperative applies for its own loans, and conducts the necessary surveys to determine the amount of funds needed at any particular time. The sale of electricity to the members of the cooperative provides the funds to pay the expenses of operations and to retire the debt to the government.

The Role of the Federal Government

The role of the Federal government is limited to that of financier. The government makes long term loans to individual cooperatives at a fixed rate of interest of two percent per annum. The loans are made for a period of from thirty to thirty-five years and are secured by a first mortgage on the electric system of the individual cooperatives.

The regulation of the REA cooperatives by the federal government is limited to that felt necessary to maximize the security of the loans. The major part of this regulation is accomplished through the establishment of the standards to be used to determine whether or not the loan applications from the cooperatives will be approved. For example, the REA will not approve a loan application unless the rates charged for electric service are at the level that offers reasonable assurance that the resulting revenue will enable the cooperative to meet operating expenses and retire the loan over the period specified in the loan contract.

This may mean that the REA will recommend either an increase or a decrease in the proposed rates. If the REA feels that the proposed rates are too high, it may find it necessary to support the cooperative in negotiations for lower power rates from the supplier of power to the cooperative.

A second factor affecting the regulation by the government relates to one of the primary aims of the REA, that of area coverage. The REA insists that each cooperative provides electric service in its area to all those who desire it at the price offered. Thus any construction project submitted as the basis for a loan from the REA must be planned with that goal in mind. Any project that does not have area coverage in mind will not be approved by the REA.

In addition to the desire to safeguard the funds invested in the REA cooperatives and to attain area coverage, the REA expects the cooperatives to abide by sound engineering practice. The REA has established standards of construction that must be met by the cooperatives before loan applications will be approved or before a finished project will be accepted by the REA. This type of regulation is closely related to the safety of loans made by the REA, but it is also aimed at more than this. The engineering specifications established by the REA are for the purpose of assuring the construction of electric systems with the highest possible degree of efficiency at the lowest possible cost.

At the end of 1953 the federal government had loaned over $2.5 billions (Table 2). On the above date there were over 1,000 organizations that had borrowed funds through the REA and had begun the job of furnishing electric power to rural customers. Over 900 of these organizations were co-operatives and the remainder was composed of public utility districts, other public bodies, and power companies. There are some thirty borrowers which operate refrigeration locker plants only, while the remaining borrowers distribute, generate, and/or transmit electric power.

The cooperatives organized for the purpose of distributing electric power were by far the most important type of borrower, accounting for $2,000,000,000 of the total loans approved. Generation and transmission systems had received approval for $500,000,000, and $23,000,000 had been provided for financing consumer purchases of wiring and appliances. All of the loans made by the REA are secured by a mortgage, and each loan contract specifies the repayment schedule.

Although all loans are not for the maximum allowable period of thirty-five years, most of the loans are contracted on this basis. The loan contracts generally provide for a thirty-five year loan with the repayment period beginning after the passage of five years from the date of the loan contract. During this five year period no payments are required to be made toward the retirement of the loan and no

TABLE 2

CUMULATIVE NUMBER OF REA-FINANCED SYSTEMS IN OPERATION, AND AMOUNT OF LOANS APPROVED, ANNUALLY, 1935-1954[a]

Calendar Year	Energized Systems[b]	Cumulative Loans Approved (Millions of dollars)			
		Distribution Systems	Generation and Transmission	Consumer Facilities	Total[c]
(1)	(2)	(3)	(4)	(5)	(6)
1935	2	7	0	0	7
1936	29	44	d	d	44
1937	126	78	3	d	82
1938	350	174	5	2	181
1939	548	257	7	5	268
1940	685	334	11	7	351
1941	773	393	31	10	434
1942	803	406	43	11	460
1943	811	420	43	11	474
1944	826	456	50	12	518
1945	848	593	61	12	667
1946	869	849	96	13	958
1947	911	1,048	129	13	1,191
1948	952	1,375	186	14	1,575
1949	995	1,657	327	14	1,999
1950	1,007	1,879	413	19	2,312
1951	1,016	2,015	448	21	2,484
1952	1,020	2,080	490	23	2,593
1953	1,022	2,138	506	25	2,669
1954	n.a.	2,379	544	n.a.	n.a.

[a]Source: U. S. Department of Agriculture, Annual Statistical Report, REA, 1953 (Washington: Government Printing Office, 1953), p. VIII. Data for 1954 are from U. S. Department of Agriculture, REA, "Monthly Statistical Bulletin, Electric and Telephone Programs," number 166, February, 1955 (Statistical Services Section, Administrative and Loan Division, March 9, 1955), p. 1.

[b]Excludes borrowers operating refrigeration facilities only. Borrowers from the REA include cooperatives, public power districts, other public bodies and power companies. On December 31, 1953, there were 1,078 borrowers as follows: Cooperatives, 983; public power districts, 44; other public bodies, 26; power companies, 25.

[c]Components may not add to totals due to rounding.

[d]Less than $1,000,000.

Note: n.a. means data not available.

interest payments are required. Interest accumulates at the rate of two percent per annum on the loan funds as they are advanced to the borrower for use. The interest thus accumulated, the principal of the loan, and the current interest, are then paid in equal quarterly installments over the remaining thirty years of the life of the loan. A borrower may make payments toward the retirement of the loan principal in advance of the due date, and such a payment may be applied against an amount due at the pleasure of the borrower.

Rural Electrification in Oklahoma

The Legal Basis

Prior to 1939 rural electric cooperatives organized in Oklahoma were chartered under the general cooperative laws of the State. The Oklahoma legislature in 1939 enacted legislation, entitled the Rural Electric Cooperative Act,[9] for the purpose of facilitating the development of the rural electrification program in the State. This Act followed in general the form recommended by the REA.

The Rural Electric Cooperative Act sanctions the establishment of privately owned rural electric cooperatives in the State, prescribes their activities, and provides for the general administrative organization of cooperatives.

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[9] Oklahoma Statutes, Title 18, Sections 437 to 437.30.

The Act provides that each cooperative shall pay one dollar in taxes for each one hundred persons to whom it supplies electricity each year, and frees the cooperative from all other excise and income taxes.[10] Cooperatives chartered under this Act are exempt from the jurisdiction and control of the Corporation Commission of Oklahoma.[11] This provision makes it possible for the REA to influence the rates charged by the cooperatives without the necessity of getting the rates approved by the Corporation Commission.

REA Cooperatives in Oklahoma

There are twenty-six distribution type rural electric cooperatives in Oklahoma, all of which have some portion of their systems in operation. The last REA cooperative organized in Oklahoma was set up in 1950 and began providing service that year. The cycle of operations of these cooperatives includes the borrowing of funds from the REA, the use of these funds for the construction of the distribution systems, the sale of electricity to rural consumers, and the repayment of the loans.

In addition to the distribution type cooperatives there is one generation and transmission cooperative and one transmission cooperative. These two cooperatives are federations of several of the distribution cooperatives. Western

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[10] Ibid., Section 437.25, p. 743.

[11] Ibid., Section 437.26, p. 743.

Farmers Electric Cooperative, which both generates and transmits electric power, is a federation of eleven distribution type cooperatives. This cooperative was formed for the purpose of assuring an adequate supply of low cost power for the cooperatives in Western Oklahoma.

The second of these cooperatives, known as KAMO (Kansas, Arkansas, Missouri, and Oklahoma) only transmits electric power. KAMO is a federation of twenty-one distribution type cooperatives, seven of which are located in Oklahoma. The purpose of this cooperative is to assure an adequate supply of low cost electric power to the member cooperatives. This purpose is to be accomplished by the purchase of electric power for resale to the distribution cooperatives, and the construction of transmission lines to points of delivery to the distribution systems. In order to meet the needs of the cooperatives in Oklahoma, the construction program as planned at the end of 1952 provided for 300 miles of 69,000 volt lines to be built in the state.

These two cooperatives account for a small proportion of the total power input of the Oklahoma REA cooperatives. About 88 percent of the total power input of the cooperatives in 1953 was purchased from commercial power companies. The total power generated by the Oklahoma REA cooperatives in 1953 was approximately 41,000,000 kwh of the

total input for that year of 326,000,000 kwh.[12]

Since November, 1942, the REA cooperatives in Oklahoma have had as their statewide association the Oklahoma Statewide Electric Cooperative, Inc. Twenty-three of the distribution type cooperatives are members of this association, which functions to distribute information to the members and to serve as a coordinating agency in regard to the common problems of the REA cooperatives. The association is financed by annual dues from each cooperative, the amount of the dues for any cooperative depending upon the number of customers it serves.[13]

The Size of the Program

The REA program began in Oklahoma with the inauguration of the program by the federal government in fiscal year 1936 (Table 3). From a small beginning in 1936 the total amount of loans approved for Oklahoma cooperatives had increased to $100,000,000 by the end of fiscal year 1952. About $80,000,000 of the total loans approved were approved since the end of World War II.

Data on the number of consumers served by Oklahoma REA cooperatives are not available for the years prior to

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[12]U. S. Department of Agriculture, REA, Annual Statistical Report, 1953 (Washington: Government Printing Office, 1955), p. XVII.

[13]All of the general information contained in this subsection was obtained by personal interviews with the managers and other personnel of the various cooperatives.

TABLE 3

LOANS APPROVED AND OTHER SELECTED DATA ON REA COOPERATIVES IN OKLAHOMA, ANNUALLY, 1936-1954[a]

Calendar Year	Loans Approved (Thousands of dollars)	Consumers Connected (Number)	Percent of Farms Electrified[b]	Annual Power Input (Millions of KWH)	Average Monthly KWH Consumption Per Farm Consumer
(1)	(2)	(3)	(4)	(5)	(6)
1936	$ 70	n.a.	2.6	n.a.	n.a.
1937	1,786	n.a.	3.1	n.a.	n.a.
1938	2,373	n.a.	3.4	n.a.	n.a.
1939	5,859	n.a.	4.8	n.a.	n.a.
1940	6,604	n.a.	8.5	n.a.	n.a.
1941	n.a.	20,401	13.7	17	n.a.
1942	n.a.	22,354	n.a.	23	n.a.
1943	n.a.	24,455	17.2	28	n.a.
1944	n.a.	29,798	n.a.	35	n.a.
1945	16,567	37,407	n.a.	42	n.a.
1946	24,582	45,646	29.0	55	n.a.
1947	33,574	55,510	47.7	75	n.a.
1948	45,710	69,510	44.1	99	n.a.
1949	64,783	87,662	56.0	130	96
1950	88,118	104,417	67.7	172	98
1951	97,048	115,035	70.0	212	106
1952	104,989	122,284	78.7	251	117
1953	110,304	127,522	81.5	326	n.a.
1954	$117,075[c]	129,327[d]	83.8	n.a.	n.a.

[a]Source: Data in Columns (2), (3), and (5) from U. S. Department of Agriculture, Allotment, Construction, Operating and Financial Statistics of REA-Financed Systems, 1941-1943; and Annual Statistical Report, REA, 1944-1953 (Washington: Government Printing Office, 1942-1954), various pages.

[b]Data are for fiscal years, and include farms provided electric power by REA cooperatives and commercial power companies.

[c]U. S. Department of Agriculture, REA, Monthly Statistical Bulletin, Electric and Telephone Programs, December, 1954 (Washington: Statistical and Services Section, Administrative and Loan Accounting Division, REA, January 21, 1955), p. 2.

[d]Data are for April 30, 1954. U. S. Department of Agriculture, REA, Monthly Statistical Bulletin, Electric and Telephone Programs, April, 1954 (Washington: Statistical and Services Section, Administrative and Loan Accounting Division, REA, June 22, 1954), p. 4.

[e]Data are for June 30, 1954. U. S. Department of Agriculture, news release dated October 1, 1954.

Note: n.a. means data not available.

1941. The number of consumers increased from 20,000 in 1941 to 119,000 in 1952. These include farms, rural non-farm families, rural churches and schools, and some rural industry. In 1936 only one farm in every thirty-three was served with electric power, while in 1952 about three farms out of every four were being served either by cooperatives or commercial power companies. As the number of consumers increased, and as the average consumption per consumer has increased, the amount of power necessary for the operations of the cooperatives has increased rapidly. The power consumed through REA cooperatives in Oklahoma increased from 17,000,000 kwh in 1941 to over 300,000,000 kwh in 1952. In 1949, the earliest year for which data are available, the average monthly consumption per farm consumer in Oklahoma was 96 kwh, while in 1952 this had increased to 117 kwh.

The value of the REA program to Oklahoma agriculture has been great whether the program is appraised in terms of the increased comforts and efficiency in the rural areas, or in terms of the economic activity resulting directly from the program itself. The construction program alone has meant the expenditure of $100,000,000, a part of which is paid for materials and labor within the state. At the annual rate of 300,000,000 kwh input for the REA systems the amount that the cooperatives pay for power will be roughly $1,500,000. Practically all of this is purchased from private power companies in Oklahoma. The annual payroll of

the cooperatives amounts to a considerable sum, in addition to wages paid on construction projects.

Each consumer connected by an REA cooperative enlarges the market for wiring and plumbing supplies and electrical appliances and equipment. As early as 1945 the REA estimated that within five years after first receiving electric power the average consumer spends $500 for these items. Inflation and general prosperity since that time have probably increased the average considerably. Such expenditures have been sufficient to support a number of electric appliance and farm equipment dealers.

The Accumulation of Surpluses

Throughout the nation in recent years REA cooperatives have been accumulating a surplus of funds. This surplus indicates an excess of revenues over current operating expenses and loan repayments. It appears that the rates charged consumers for electric power are set at a level that results in revenues to the cooperatives more than sufficient to meet the current expenses of operations plus the amount of the principal currently being retired.

The accumulation of a surplus by a cooperative is apparent to its management when the general cash fund increases to an amount that is more than necessary to meet the costs of operations and the retirement of the loans. This surplus in the general cash fund is usually converted into

some other form of asset or is used to reduce the balance of the loans by making repayments in advance of the due date. If the surplus is converted into some other form of asset, the conversion is usually accomplished by the purchase of government bonds or other types of securities. In this way the surplus cash is put to use and the cooperative receives additional income.

There are two additional uses that some cooperatives make of the surplus. Some of the surplus cash may be placed in a time deposit in a commercial bank, in which case the cooperative receives a rather low rate of return. Many cooperatives have used a portion of their surplus to enlarge their distribution systems. In this way a part of the distribution system of a cooperative may be financed out of the revenues collected rather than out of additional loan funds from the REA.

CHAPTER III

FINANCIAL GROWTH AND STRUCTURE OF OKLAHOMA REA COOPERATIVES

Introduction

In this chapter the financial condition and operations of the sixteen Oklahoma cooperatives are presented in detail. The period covered includes the years 1947 through September 30, 1952. The data were compiled from the original reports of the individual cooperatives and were obtained by personal contact with the managers and other personnel of the cooperatives. Some additional data have been presented for all cooperatives in Oklahoma, and also for all REA borrowers in the nation. The data were taken from the annual reports of the REA.

As noted earlier, there are three types of reports from which the data on the sixteen Oklahoma cooperatives were taken. These include the balance sheet, the operating statement, and the report on the loan fund transactions between the cooperatives and the REA. These reports are submitted to the REA each month by each cooperative. The data presented in this chapter are as of the end of each

year, except that for 1952 the data are for September 30. Data are presented separately for each of the three types of reports, and the various items contained in each report are explained.

The Balance Sheet

The balance sheet presents the financial condition of a cooperative as of a specified date, in the case of our data as of the end of the calendar year. Thus the balance sheets for consecutive years reveal the growth, lack of growth, or decrease in the items comprising the assets, liabilities, and equities of the cooperatives. For the purposes of this study the balance sheets of the sixteen Oklahoma cooperatives have been combined for each year and presented as a single balance sheet (Table 4). This is discussed in terms of the major sections into which accountants generally divide the balance sheet.

The Assets Section

The fixed assets section. This section includes the first seven items on the balance sheet, two of which are merely totals of other items. Electric Plant (item 1) includes all electric plant that is in service and all buildings, office equipment, and land possessed by the cooperatives. The amounts recorded in this account are the original costs of these fixed assets. Electric Plant Acquisition Adjustment (item 2) relates to electric plant that is

TABLE 4

COMBINED BALANCE SHEET OF 16 OKLAHOMA REA COOPERATIVES, ANNUALLY, 1947-1952[a]
(Thousands of dollars)

	BALANCE SHEET ITEMS	1947	1948	1949	1950	1951	1952	
	ASSETS AND OTHER DEBITS							
(1)	Electric Plant	$10,296.1	$15,994.4	$25,478.9	$37,788.8	$43,466.6	$46,911.2	(1)
(2)	Electric Plant Acquisition Adjustment	- -	276.1	392.8	431.1	398.4	387.3	(2)
(3)	Construction Work in Progress	5,414.4	6,573.3	5,166.5	1,997.8	2,133.7	2,532.4	(3)
(4)	Utility Plant Total	$15,710.5	$22,843.8	$31,038.2	$40,217.7	$45,998.7	$49,830.9	(4)
(5)	Less: Reserve for Depreciation	1,542.9	2,618.2	3,554.9	4,715.2	5,820.6	6,831.7	(5)
(6)	Less: Reserve for Acquisition Adjustment.	- -	- -	20.3	63.5	134.0	147.5	(6)
(7)	Depreciated Cost of Utility Plant	$14,167.6	$20,225.6	$27,463.0	$35,439.0	$40,044.1	$42,851.7	(7)
(8)	General Fund-Cash	$ 180.6	$ 233.1	$ 585.6	$ 914.6	$ 1,150.5	$ 1,111.1	(8)
(9)	REA Construction Fund[c]	617.4	770.4	1,095.1	1,415.3	1,113.8	761.1	(9)
(10)	Investments[d]	54.5	65.7	96.4	232.1	952.7	1,444.8	(10)
(11)	Notes Receivable	12.2	27.5	27.1	27.1	27.3	29.0	(11)
(12)	Accounts Receivable	576.1	640.8	619.6	577.5	570.4	674.5	(12)
(13)	Less: Reserve for Uncollectible Notes and Accounts	26.9	10.3	14.0	22.1	22.6	23.5	(13)
(14)	Materials and Supplies	2,027.6	2,323.4	2,250.3	1,270.1	1,884.2	1,510.3	(14)
(15)	Prepayments	44.1	52.5	66.0	68.9	93.7	108.1	(15)
(16)	Total Current and Accrued Assets	$ 3,485.6	$ 4,103.1	$ 4,726.1	$ 4,483.5	$ 5,770.0	$ 5,615.4	(16)
(17)	Unamortized Loan Expense	$ 7.4	$ 16.6	$ 22.6	$ 24.2	$ 25.5	$ 23.2	(17)
(18)	Extraordinary Property Losses	8.8	21.7	143.0	30.1	5.6	- -	(18)
(19)	Other Deferred Debits	376.9	440.0	321.0	198.7	126.3	85.3	(19)
(20)	Total Other Debits	$ 393.1	$ 478.3	$ 486.6	$ 253.0	$ 157.4	$ 108.5	(20)
(21)	TOTAL ASSETS AND OTHER DEBITS	$18,046.3	$24,807.0	$32,675.7	$40,175.5	$45,971.5	$48,575.6	(21)

TABLE 4--Continued

	BALANCE SHEET ITEMS	1947	1948	1949	1950	1951	1952	
	LIABILITIES AND OTHER CREDITS[b]							
(22)	Membership Fees	$ 257.6	$ 297.8	$ 338.0	$ 370.9	$ 403.6	$ 419.5	(22)
(23)	Patronage Capital Credits	- -	- -	- -	20.7	35.8	66.3	(23)
(24)	Total Patrons' Capital	$ 257.6	$ 297.8	$ 338.0	$ 391.6	$ 439.4	$ 485.8	(24)
(25)	Total Long Term Debt[e]	$16,824.6	$23,034.7	$31,044.1	$37,710.9	$44,585.2	$47,184.0	(25)
(26)	Accounts Payable	$ 458.6	$ 833.1	$ 573.9	$ 1,485.4	$ 395.6	$ 298.2	(26)
(27)	Consumers' Deposits	45.2	62.1	80.7	96.6	112.0	124.2	(27)
(28)	Accrued Liabilities[f]	41.0	57.7	52.5	42.4	51.5	39.6	(28)
(29)	Other Current and Accrued Liabilities	19.8	19.0	17.6	21.7	26.9	36.0	(29)
(30)	Total Current and Accrued Liabilities	$ 564.6	$ 971.9	$ 724.7	$ 1,646.1	$ 586.0	$ 498.0	(30)
(31)	Contributions in Aid of Construction	$ 38.8	$ 58.1	$ 72.2	$ 103.2	$ 126.0	$ 161.3	(31)
(32)	Other Deferred Credits[g]	25.3	35.0	92.3	108.5	129.8	106.9	(32)
(33)	Total Deferred Credits	$ 64.1	$ 93.1	$ 164.5	$ 211.7	$ 255.8	$ 268.2	(33)
(34)	Other Capital	$ 28.6	$ 13.3	$ 28.7	$ 48.0	$ 66.2	$ 82.6	(34)
(35)	Operating Margin (Current Year)	136.4	104.4	-29.0	8.8	36.2	33.0	(35)
(36)	Operating Margin (Previous Years)	152.6	270.6	309.5	40.5	-146.1	-145.0	(36)
(37)	Non-Operating Margin	17.8	21.2	95.2	117.9	148.8	169.0	(37)
(38)	Total Margins and Other Equities	$ 335.4	$ 409.5	$ 404.4	$ 215.2	$ 105.1	$ 139.6	(38)
(39)	TOTAL LIABILITIES AND OTHER CREDITS	$18,046.3	$24,807.0	$32,675.7	$40,175.5	$45,971.5	$48,575.6	(39)

[a]Source: Compiled from balance sheets of the individual cooperatives.

Note: Data refer to end of year, except that data for 1952 refer to September 30.

[b]All items appearing on the original balance sheets, but not used in this table, were not used by the co-ops.

[c]Includes $62 in the REA Installation Fund in 1952.

[d]Includes amounts in Restricted Funds, Investments, and Temporary Investments.

[e]Composed entirely of REA Construction Obligations.

[f]Includes amounts in Accrued Taxes, Accrued Interest, Employees Income Taxes Withheld, and Accrued Insurance.

[g]Includes Consumers' Advance Payments of $2,434 in 1947, and $1,213 in 1949; and Consumers' Advances for Construction of $1,518 in 1948, $1,688 in 1949, and $75 in 1951 and 1952.

purchased from some other organization. This account contains the difference between (1) what the cooperatives paid for the purchased plant, and (2) the original cost of the plant less the estimated depreciation to the date of purchase. A hypothetical example will illustrate the circumstances that give rise to, and determine the amount of, an entry in this account. Let us assume that a cooperative negotiated to purchase a certain number of miles of electric lines from a commercial power company. The original cost of these lines to the power company, as recorded in the fixed asset accounts of the company, was $500,000. Let us make the further assumption that the company had used these lines for five years, and depreciation had been charged at the rate of three percent per annum. A total of $75,000 would have been charged as depreciation over the five year period, and the value of these lines would be $425,000 at the time the purchase was negotiated. If the cooperative agreed to pay $450,000 for the lines, the difference ($450,000 minus $425,000, or $25,000) would be entered on the books of the cooperative as a debit to the Electric Plant Acquisition Adjustment account.

The accounting entries made by the cooperative to record the above purchase would be as follows: (1) A credit to cash of $450,000 as the purchase price, and a debit of $450,000 to the Electric Plant Purchased account; (2) a debit of $75,000 to the Electric Plant Purchased account to

charge the depreciation to the date of purchase, and a credit of $75,000 to the Reserve for Depreciation; (3) a debit of $500,000 to the Electric Plant in Service account to record the new asset at the original cost to the previous owner, and a credit of $500,000 to the Electric Plant Purchased account; and (4) a credit of $25,000 to the Electric Plant Purchased account to close out this account, and a debit of $25,000 to the Electric Plant Acquisition Adjustment account.

The use of the Electric Plant Acquisition Adjustment account allows the cooperatives to record the purchased property in the Electric Plant account at the original cost to the first owner, regardless of the actual price paid by the cooperatives. If a cooperative pays more than the current depreciated cost for a piece of property, the excess of the purchase price over the depreciated cost is debited to the Electric Plant Acquisition Adjustment account. This amount can then be transferred to the balance sheet as an addition to the Electric Plant account in order to arrive at the total cost of the existing plant to the cooperative. Otherwise, the excess of the purchase price over the depreciated cost would be recorded as a capital loss, and this might embarrass the cooperative because of the resulting deduction from the margins account. The amount in the Electric Plant Acquisition Adjustment account can be amortized over a period of years, thus the margins account will be reduced only a fraction of the above excess in any one

year.[1]

If a cooperative pays less than the depreciated cost of the acquired property, the Electric Plant Acquisition Adjustment account will be credited with the difference between the purchase price and the depreciated cost, rather than debited as in the above example. Again, the use of the adjustment account makes it possible for the cooperative to record the acquired property at the original cost to the first owner. The amount credited to the adjustment account can then be transferred to the balance sheet as a subtraction from the Electric Plant account in order to arrive at the total cost of the electric plant to the cooperative. The capital gain that results from such a purchase can be spread over a number of years; otherwise all of such a gain would be reflected in the margins account for the year in which the purchase was made.

Construction Work in Progress (item 3) contains charges to construction on projects that have not yet been put into service. As these projects are completed and put into service the balance in this account is transferred to Electric Plant (item 1).

Items 5 and 6 are the reserve accounts relating to the fixed assets. The balance in the Reserve for Depreciation (item 5) is the estimate of the amount by which the

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[1]See the discussion of item (6) below.

value of the fixed assets has decreased. Depreciation is defined in the REA Manual of Accounts as follows:

> The loss in service value of depreciable plant not restored by current maintenance resulting from causes against which no insurance is carried, such as wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand, and requirement of public authorities.[2]

The balance in the Reserve for Depreciation account at any time is the result of a series of debit and credit entries. A credit entry is made in this account to record the reduction in the value of a fixed asset that is the result of one of the causes listed in the above definition of depreciation. The concurrent debit is an equal charge of depreciation expense against operating revenues. As noted above, a credit entry is made in the Reserve for Depreciation account to record the estimated depreciation of acquired property to the date of acquisition. All credit entries to this account are made to record an estimate of the depreciation of a fixed asset.

The balance recorded in this account on the balance sheet is a net figure; that is, it is the difference between the credit and debit entries that were made in the Reserve for Depreciation Account over the life of the cooperatives. A debit entry is made in this account at any time a

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[2]U. S. Department of Agriculture, REA, Uniform System of Accounts Prescribed for Electric Cooperatives Financed by the Rural Electrification Administration (Washington: Loose-leaf copy prepared by the Finance Division, REA, U.S. Department of Agriculture, January 1, 1947), p. 5.

depreciable asset is sold, exchanged, repaired, replaced, or destroyed. Why this is necessary can perhaps best be seen by noting that the Reserve for Depreciation is deducted from the original-cost value of the fixed assets (item 4) to arrive at the depreciated cost of the utility plant (item 7 of Table 4). Since this is the case, it is necessary to adjust the Reserve for Depreciation every time an event changes the original-cost value of the utility plant (item 4 of Table 4). Thus, when a fixed asset is retired from use, or replaced by a new asset, the Reserve for Depreciation must be reduced by the amount of depreciation that had been charged over the entire life of the asset.

It is possible for the cooperatives either to overestimate or underestimate the life of a fixed asset. In the case of the former the rate of depreciation charged will be too small to fully depreciate the asset over its useful life. In the case of the latter the rate of depreciation charged will be too great, and the asset will be fully depreciated before it has to be replaced. If the useful life of an asset has been overestimated, the amount recorded in the Reserve for Depreciation will, at the time that it is necessary to retire or replace the asset, be less than the original cost of the asset. However, the Reserve for Depreciation cannot be debited for more than has been credited to it as a consequence of charging depreciation over the life of the asset to be replaced or retired. The difference

between the original cost of the asset to be retired or replaced, and the amount of depreciation charged, must be debited to the Capital Gains and Losses account.[3]

If the useful life of an asset has been underestimated, the amount recorded in the Reserve for Depreciation, as a consequence of depreciating this particular asset, will be equal to the original cost of the asset before the end of its useful life has been reached. However, the asset cannot be depreciated more than its original cost. This situation can be corrected by re-estimating the life of the asset and adjusting the Reserve for Depreciation for the amount by which the new estimate indicates the reserve to be excessive. This adjustment would be made by a debit to the Reserve for Depreciation for the excess of depreciation that had been charged, and a credit to the Operating Margins account. If the asset is sold before such an adjustment is made, the Capital Gains and Losses account would be credited with the difference between (1) the original cost of the asset, and (2) the sum of the depreciation that had been charged and the sale price.

Thus, the balance in the Reserve for Depreciation account, that is, the amount that is recorded on the balance sheet, is a net figure. The balance in the account represents the estimate of the decrease in the value of the

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[3] Ibid., p. 50.

depreciable assets that results from any of the causes listed in the previous definition of the term "depreciation." This balance, at any particular time, reflects the depreciation of only those depreciable assets that are currently a part of the total utility plant.

The Reserve for Acquisition Adjustment (item 6) reflects the amortization of the amount recorded in the Electric Plant Acquisition Adjustment account (item 2). As was indicated in the discussion above, the amount recorded in the Electric Plant Acquisition Adjustment account can be amortized over a period of years. The amortization is accomplished by an annual charge against revenues of a proportion of the balance in the adjustment account. This charge appears on the operating statement as an expense item, Amortization of Acquisition Adjustment (item 15 of Table 5), and the concurrent credit entry is to the Reserve for Acquisition Adjustment. The similarity between the depreciation charge and the amortization charge is readily apparent; both of these are made on the basis of past capital expenditures. In contrast, most items of expense are on the basis of current expenditures.

The other two items in this section are totals of other items. Utility Plant Total (item 4) is the sum of items (1), (2), and (3), and indicates the extent to which the cooperatives have constructed and purchased facilities for use in the distribution of electric power. The total in

the utility plant account increased from $15,710,500 in 1947 to $49,830,900 on September 30, 1952. More than $34,000,000, or two-thirds of the total plant, was constructed during this period.

The Depreciated Cost of Utility Plant (item 7) is the Utility Plant Total (item 4) less the two reserve accounts (items 5 and 6). The depreciated cost of the utility plant increased from $14,000,000 in 1947 to $43,000,000 on September 30, 1952. The amount recorded in the reserve for depreciation account increased from $1,500,000 in 1947 to almost $7,000,000 on September 30, 1952, an indication of the extent to which it was estimated that the fixed assets decreased in value through use. The reserve for acquisition adjustment, which had been negligible in 1947 and 1948, increased from $20,000 in 1949 to $147,000 on September 30, 1952.

The current assets section. This section includes items (8) through (16), and shows mainly the balances that fluctuate in relation to the current activities of the co-operatives. General Fund-Cash (item 8), which is self-explanatory, increased from $180,000 in 1947 to $1,100,000 on September 30, 1952. The REA Construction Fund (item 9) contains the funds advanced from the REA that have not yet been used by the cooperatives. Funds to be used by the co-operatives to finance the construction or acquisition of the utility plant, are made available by the REA upon the receipt

and subsequent approval of loan applications submitted by the cooperatives. The cooperatives receive these funds when needed, as the result of the submission of requisitions to the REA. The receipt of these funds is recorded in the REA Construction Fund account, and they are disbursed as payment for acquired or constructed plant. The funds that flow through this account are reflected in the fixed asset accounts. The funds recorded in this account can be used only to purchase or construct plant and equipment that will be used by the cooperatives.

Investments (item 10) is a combination of three accounts in the original balance sheets, Restricted Funds, Investments, and Temporary Investments. The combination account contains investments that are grouped in three categories; those that result from funds that have been set aside for restricted use, those that are made from an excess in the general cash fund that it is contemplated will not be needed for a considerable period of time, and those from an excess in the general cash fund that it is felt will be needed in the near future. The second category makes up the larger portion of the combined account. The revenue from the sale of the services of the cooperatives is the source of the general cash fund.

Notes Receivable and Accounts Receivable (items 11 and 12) require no comment as they are self-explanatory, and are used by the cooperatives in the same way they are used

by other business organizations. The Reserve for Uncollectible Notes and Accounts (item 13) is a combination of two accounts appearing on the original balance sheets. On the balance sheets there is a separate reserve account for notes receivable and accounts receivable. They represent estimates of expected losses on notes and accounts receivable.

The Materials and Supplies account (item 14) contains the amounts of materials and supplies on hand. This account is made up of the balances in those accounts relating to materials used both in the operations of the cooperatives and in the construction of additional plant facilities. Materials and supplies used in construction make up the major part of this account. These supplies are purchased out of the general cash fund. Prepayments (item 15) is the amount of such items as insurance, taxes, and interest that have been paid in advance. The balance in this account is the monetary value of the listed items that have been paid for, but have not yet been received by the cooperatives. Total Current and Accrued Assets (item 16) is the total of items (8) through (15). It increased by $2,000,000 between 1947 and 1952. Most of this increase resulted from the increase in the General Fund-Cash and Investments accounts.

Other assets section. This section includes the remainder of the items on the asset side of the balance sheet (items 17 through 20). Unamortized Loan Expense (item 17) is the amount of expense incurred in obtaining loans

from the REA. Such expense is recorded as an asset and is then amortized over a period of time at the discretion of the Board of Trustees. REA recommends that the amortization period be over the life of the loan.[4] Extraordinary Property Losses (item 18) includes losses in the value of property which could not have reasonably been foreseen, and which are not provided for by the depreciation or other reserve. The instructions relating to this account forbid its use except when the cooperative obtains specific permission from the REA.[5] If unforeseen property losses are suffered by a cooperative, the amount of which is so large that replacement cannot be financed immediately by the cooperative, the REA will lend the necessary funds to finance the replacement. The amount of such property losses is transferred from the Electric Plant account into the Extraordinary Property Losses account. The asset is then written off over a period of years by a charge against operating revenue and a credit to the Extraordinary Property Losses account. This account contained a sizeable balance in only one year, 1949, with one cooperative accounting for $137,000 of the $143,000 total that year.

Other Deferred Debits (item 19) is not an important account in terms of size, but its later use in the statement of application of funds makes an explanation of this account

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[4] Ibid., p. 28.

[5] Ibid., p. 29.

necessary. The REA accounting manual defines this account in this way: "This account shall include all debits, not elsewhere provided for, the proper final disposition of which is uncertain, and unusual or extraordinary expenses, not included in other accounts, which are in process of amortization."[6] Such accounts are known as "suspense" accounts, and the absence of a discussion relating thereto in most accounting textbooks is indicative of their lack of use in most business enterprises.[7]

The nature of the activities of REA cooperatives, however, requires that much be made of this type of account. While engaged in the construction of additional facilities the cooperatives charge many items to the construction project, some of which may not be approved by the REA. Such charges are held in "suspense" until REA approval of the project has been received, following which the debits are made to the permanent accounts.

Total Other Debits (item 20) is the sum of items (17), (18), and (19), and reflects mainly the amount recorded in Other Deferred Debits (item 19). Total Assets and Other Debits (item 21) increased from $18,000,000 in 1947 to $49,000,000 on September 30, 1952. Most of this increase

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[6] Ibid., p. 31.

[7] For a discussion of this type of account see, W. A. Paton, Essentials of Accounting (New York: The Macmillan Co., 1938), p. 184.

occurred in the Depreciated Cost of Utility Plant account (item 7). Other accounts which showed relatively large increases were General Fund-Cash (item 8) and Investments (item 10).

The Liabilities and Equities Section

Patron's Capital. Total Patron's Capital (item 24) is composed of two accounts, Membership Fees (item 22) and Patronage Capital Credits (item 23). Membership fees, which increased from $257,000 to $419,000 over the period of this study, are made up entirely of payments by the customers of the cooperatives in order to become members of the organization. For most cooperatives this fee is $5.00 per member, and a person must become a member before he is eligible to receive the services of the cooperative.

Patronage capital credits arise when a cooperative adopts a plan recommended by the REA which provides for crediting to an account for each member an amount of the operating margin proportionate to the percentage that each member's patronage is of the total patronage. This is in accordance with general cooperative practice of rebating to members some part of the amount by which the selling price exceeds the cost of the service. The amount of the operating margin to be rebated is determined by the Board of Trustees. The late appearance of a balance in this account is due to the fact that the REA did not recommend such a

practice until about the end of World War II. Cooperatives may or may not adopt the plan as they see fit. Six of the sixteen cooperatives in this study had adopted the plan by September 30, 1952. The first adoption by one of the sixteen cooperatives was in 1950, and by September 30, 1952 the amount in this account was $66,000.

The Capital Credits Plan, as recommended by the REA, provides that no rebates be made until the cooperatives have fulfilled their obligations to extend and improve electric service, and until their ability to repay their loan obligations is reasonably assured. Once it has been determined that a cooperative is financially able to make such rebates, it can proceed to retire the capital credits, beginning with the year specified at the time of adoption of the plan. Before the retirement of capital credits begins, the operating margins are available for use as the cooperative sees fit.[8]

Long term debt section. The long term debt of the cooperatives is contained in one account on the balance sheet (item 25), and is made up entirely of the balance owed to the REA on loans received. The balance in this account is the net obligation due the REA. It is composed of the total advances of funds from the REA plus the amount of accrued deferred interest, minus repayments made to the

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[8]For details of the Capital Credits Plan see, U.S. Department of Agriculture, Administrative Policies, REA (Washington: Government Printing Office, 1950), Administrative Bulletin No. 12.

REA. Thus, this account shows the balance due the REA on loans obtained by the cooperatives for the construction of their distribution systems. This account rose from $17,000,000 in 1947 to $47,000,000 on September 30, 1952.

Current and accrued liabilities section. This section contains the short-term liabilities of the cooperatives (items 26 through 30). Accounts Payable (item 26) is the largest account in this section, and the tendency over the period was for this account to decrease. The account contains all short-term accounts payable, but is made up primarily of debt incurred in the purchase of materials and supplies used in construction activities. As the volume of construction activities declines, the amount in this account tends to decrease.

Accounts Payable amounted to $459,000 in 1947, increased to a peak of $1,485,000 in 1950, and declined to $300,000 in 1952. The large increase in this account in 1950 and the sharp decline in 1951 were the result of the operations of one of the cooperatives. This cooperative acquired slightly less than $1,000,000 in assets from another cooperative, one that is not included in this study, and recorded this amount temporarily as an account payable. When the necessary paper work was completed, the above amount was transferred into the long term debt account.

Consumers' Deposits (item 27) contains the amounts that consumers have deposited with the cooperatives for

security for the payment of bills. This account increased from $45,000 in 1947 to $124,000 on September 30, 1952. Accrued Liabilities (item 28) is a combination of several accounts that appear on the original balance sheets. This account includes expenses that are charged to current operations, but which have not yet been paid. The separate accounts included in this combined account are Accrued Taxes, Accrued Interest, Employees Income Tax Withheld, and Accrued Insurance. This account was relatively unchanged over the period. It amounted to $41,000 in 1947 and $40,000 in 1952.

The final account of this section, Other Current and Accrued Liabilities (item 29), contains all other expenses charged to current operations which have not yet been paid. Items making up this account include Accrued Rentals, Accrued Payrolls, and Vacation and Holiday Pay. This account increased from $20,000 in 1947 to $36,000 on September 30, 1952. Total Current and Accrued Liabilities (item 30) decreased from $565,000 in 1947 to $498,000 on September 30, 1952.

Other liabilities section. This section includes items (31) through (33), and is composed of Contributions in Aid of Construction and Other Deferred Credits. Contributions in Aid of Construction (item 31) contains the amount of cash or other contributions by units of government or by consumers that are used in the construction of the electric systems. Other Deferred Credits (item 32) is primarily a

"suspense" account, containing those credits the final disposition of which has not been determined. In addition to the "suspense-type" credits this account contains advance payments made by consumers. The amount of advance payments is small, however, and for this reason this account will be considered as being made up entirely of "suspense" credits.[9] Total Deferred Credits (item 33) increased from $64,000 in 1947 to $268,000 in 1952.

Other capital and margins section. This section is made up of items (34) through (38), and contains the capital of the cooperatives, other than patron's capital, and the operating and non-operating margins. The operating margins (items 35 and 36) are composed of the excess of revenues from the sale of electricity over the expenses incurred in providing the service. These two accounts record the operating margin for the current year (item 35) and the operating margin for all previous years (item 36). The current operating margin was the highest for any one year in 1947 when it was $136,000, and it was lowest in 1949 when there was a negative margin of $29,000. In 1947 the operating margin for previous years was $153,000, but by 1952 this had become a negative margin of $145,000.

The Non-Operating Margin (item 37) is the excess of

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[9] See footnote "f" of Table 4 for the amount of advance payments contained in this account.

income over expenses in connection with activities of the cooperatives in areas not related to the distribution of electric power. This item is cumulative over the period, increasing from $18,000 in 1947 to $169,000 on September 30, 1952. Total Margins and Other Equities (item 38) is the sum of the margins accounts and the other capital account. This account was $335,000 in 1947 and decreased to $139,600 on September 30, 1952.

The operating margins accounts, because of operating losses by some cooperatives, present a distorted picture of the status of the individual cooperatives. In 1949, the only year when the combined current operating margin (item 35) is negative, five cooperatives had operating losses ranging from $600 to $11,300, while one had a loss of $61,000. The other ten cooperatives had a positive net operating margin each year, the largest operating margin being $62,000 in 1950. The same cooperative had an operating margin of $60,000 in 1951 and $40,000 in 1948.

The Operating Statement

An operating statement is a report showing all the income and expenses of a business organization during a given period of time. The annual operating statements of the sixteen Oklahoma cooperatives have been combined for the years 1947 through September 30, 1952. To facilitate presentation of the operating statement many of the items

appearing on the original statements have been combined. The items that have been combined are indicated in Table 5.

Operating Income

The total income from operations is contained in Operating Revenue and Patronage Capital (item 1). This item is a combination of three accounts that appear on the original operating statements, Electric Energy Revenues and Patronage Capital, Consumers' Forfeited Discounts and Penalties, and Miscellaneous Electric Revenues. The portion accounted for by Electric Revenues and Patronage Capital generally is about ninety-five percent of the total in the combined account. In order to facilitate comparison, the data for 1952, which covers only the first nine months of operations, has been increased by one-third in the case of the more important items and presented in Table 6. Operating revenues are thus shown to have increased from less than $2,000,000 in 1947 to almost $5,300,000 in 1952. This is an increase of over $3,350,000 over the period or 174 percent.

Operating Expenses

The operating expenses section of the operating statement includes items (2) through (11). On the original operating statements this section is composed of twenty items, but this number was reduced to ten on the combined statement by consolidating some of the minor accounts. Cost of Purchased Power (item 2) is the most important item in

TABLE 5

COMBINED OPERATING STATEMENT OF 16 OKLAHOMA REA COOPERATIVES, ANNUALLY, 1947-1952[a]
(Thousands of dollars)

	REVENUES, EXPENSES AND MARGINS	1947	1948	1949	1950	1951	1952	
(1)	Operating Revenue and Patronage Capital[b].	$1,926.1	$2,427.1	$3,125.1	$3,892.5	$4,670.8	$3,958.3	(1)
	OPERATING EXPENSES							
(2)	Cost of Purchased Power.....	$ 356.0	$ 445.7	$ 526.4	$ 669.0	$ 825.8	$ 730.5	(2)
(3)	Distribution Expenses-Operations.....	141.6	179.0	232.8	307.3	340.6	276.4	(3)
(4)	Maintenance Expenses[c].....	140.3	200.4	257.6	265.9	318.4	235.1	(4)
(5)	Consumer's Accounting and Collecting.....	75.2	98.2	122.1	151.0	204.0	186.7	(5)
(6)	Power Use Expenses.....	29.4	53.6	77.2	78.8	102.8	84.6	(6)
(7)	General Office Salaries and Expenses.....	156.0	174.8	193.2	205.9	253.9	208.8	(7)
(8)	Insurance, Injuries and Damages.....	54.0	69.4	72.0	77.6	95.3	69.7	(8)
(9)	Miscellaneous General Expenses.....	71.4	91.7	129.3	117.7	142.4	132.6	(9)
(10)	Other Operating Expenses[d].....	71.9	98.7	104.4	95.9	92.0	77.7	(10)
(11)	Total Operating Expenses.....	$1,095.8	$1,411.5	$1,715.0	$1,969.1	$2,375.2	$2,002.1	(11)
	DEPRECIATION AND TAX EXPENSES							
(12)	Depreciation Expense[e].....	$ 323.1	$ 465.2	$ 774.6	$1,081.1	$1,347.8	$1,122.7	(12)
(13)	Tax Expense[f].....	53.8	66.1	79.4	98.9	119.9	100.2	(13)
(14)	Total Depreciation and Tax Expenses...	$ 376.9	$ 531.3	$ 854.0	$1,180.0	$1,467.7	$1,222.9	(14)
	OTHER EXPENSES							
(15)	Amortization of Acquisition Adjustment...	$ - -	$ 8.4	$ 14.2	$ 14.5	$ 23.3	$ 17.4	(15)
(16)	Property Losses Chargeable to Operations.	0.7	0.7	0.7	0.2	- -	- -	(16)
(17)	Amortization of Loan Expense.....	0.6	3.8	3.7	7.1	5.3	9.5	(17)
(18)	Interest on Long Term Debt.....	289.1	382.1	500.3	666.3	804.3	687.8	(18)
(19)	Less: Interest Charged to Construction...	14.9	43.7	28.8	23.8	32.2	21.2	(19)
(20)	Other Revenue Deductions[g].....	1.1	2.8	0.9	0.3	2.4	4.4	(20)
(21)	Total Other Expenses.....	$ 276.6	$ 354.1	$ 491.0	$ 664.6	$ 803.1	$ 697.9	(21)
(22)	Total Cost of Electric Service.....	$1,749.3	$2,296.9	$3,060.0	$3,813.7	$4,646.0	$3,922.9	(22)

TABLE 5--Continued

	REVENUES, EXPENSES AND MARGINS	1947	1948	1949	1950	1951	1952	
(23)	Patronage Capital	$ 176.8	$ 130.2	$ 65.1	$ 78.8	$ 24.8	$ 35.4	(23)
(24)	Adjustments of Patronage Capital	-22.8	-33.6	-90.6	-42.8	12.8	-1.1	(24)
(25)	Patronage Capital Adjusted	$ 154.0	$ 96.6	$ -25.5	$ 36.0	$ 37.6	$ 34.3	(25)
	NON-OPERATING MARGINS							
(26)	Non-Operating Revenues[h]	$ 78.2	$ 100.2	$ 91.6	$ 85.0	$ 62.1	$ 54.0	(26)
(27)	Less: Non-Operating Expenses[i]	66.9	68.1	77.7	63.5	40.6	29.8	(27)
(28)	Total Non-Operating Margins[j]	$ 11.3	$ 32.1	$ 13.9	$ 21.5	$ 21.5	$ 24.2	(28)
(29)	PATRONAGE CAPITAL AND MARGINS	$ 165.3	$ 128.7	$ -11.6	$ 57.5	$ 59.1	$ 58.5	(29)

[a]Source: Compiled from the annual operating statements of the individual cooperatives.

Note: Data refer to end of year, except that data for 1952 refer to first nine months.

[b]Includes Electric Energy Revenues and Patron Capital, Consumers' Forfeited Discounts and Penalties, and Miscellaneous Electric Revenues.

[c]Includes Distribution Expenses-Maintenance, and Maintenance of General Property and Rents.

[d]Includes Rents, Uncollectible Consumers' Accounts, Special Services, Employees Welfare Expenses and Insurance, Duplicate Miscellaneous Charges-Credit, Administrative and General Expenses-Credit, and Store Expenses.

[e]Includes Depreciation of Electric Plant, and Depreciation of General Plant.

[f]Includes Property Taxes, Social Security Taxes, State Sales Taxes-Consumers, and Other Taxes.

[g]Includes Other Interest Charges, and Miscellaneous Revenue Deductions.

[h]Includes Interest Revenues (Net), Revenues from Merchandising Sales, and Other Non-Operating Revenues.

[i]Includes Merchandising Revenue Deductions, and Other Non-Operating Deductions.

[j]All items on the original operating reports not appearing in this table are not included because of non-use by the cooperatives.

the operating expenses section, accounting for roughly one-third of the total. This item represents the cost of the power purchased by the cooperatives for resale to their members. The cost of purchased power increased from $356,000 in 1947 to $974,000 in 1952 (Table 6), an increase of 173 percent over the period.

The various items in this section are generally self-explanatory and, with the exception of Power Use Expenses, will not be discussed. Power Use Expense (item 6) is not normally found on the operating statements of other types of business, but it is comparable to sales and public relations expenses. Many REA cooperatives at the present time have on their staffs a person whose function is to advise members how to make the best use of electric power. In this way the members are acquainted with the many types of electric appliances and equipment, with the result that the purchase of these items is increased and the amount of power consumed goes up.

Total Operating Expenses (item 11) is the sum of items (2) through (10) on the combined operating statement (Table 5), and includes all expenses that are directly related to the distribution of electric power. Operating expenses increased from $1,100,000 in 1947 to $2,700,000 in 1952 (Table 6), a 144 percent increase over the period. Operating expenses have thus not been increasing at as high a rate as the power costs and operating revenue.

TABLE 6

SELECTED ITEMS FROM THE COMBINED OPERATING STATEMENT OF 16 OKLAHOMA REA COOPERATIVES, 1947 AND 1952[a]
(Thousands of dollars)

Operating Statement Items	1947	1952
Operating Revenue and Patronage Capital.....	$1,926.1	$5,277.7
Cost of Purchased Power.....	356.0	974.0
Total Operating Expenses.....	1,095.8	2,669.5
Depreciation Expense.....	323.1	1,496.9
Interest on Long Term Debt[b].....	274.2	888.8
Total Cost of Electric Service.....	1,749.3	5,230.5
Patronage Capital.....	$ 176.8	$ 47.2

[a] Source: Data are taken from Table 5 of this study. Data for 1952 have been increased by one-third to facilitate comparison.

[b] This item has been converted to a net figure by subtracting interest charged to construction.

Depreciation and Tax Expenses

This section is made up of Depreciation Expense (item 12) and Tax Expense (item 13). The depreciation expense is the charge made each month to reflect the estimated depreciation or decline in value of the capital assets. The depreciation rate is specified by the REA for the various categories of capital assets, and these rates must be used unless they conflict with rules and regulations of federal or state regulatory bodies having jurisdiction over particular borrowers. Some of the annual rates charged by the cooperatives are: distribution plant, 3.48 percent; office buildings (wood), 3 percent; office buildings (concrete), 2 percent; office furniture and equipment, 6 percent; transportation equipment, 33.33 percent; and communication equipment, 10 percent.[10]

Since the amount charged as depreciation expense is directly related to the size of the capital assets of the cooperatives, this expense item increases along with the increase in the size of the utility plant accounts. The increase in this charge was 363 percent over the period, from $323,000 in 1947 to $1,497,000 in 1952 (Table 6). This is a greater increase than for any other item of expense, and beginning in 1948 it has been the largest single item of

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[10]U. S. Department of Agriculture, Administrative Policies, REA (Washington: Government Printing Office, 1950), Administrative Bulletin No. 10.

expense.

Other Expenses

This section includes items (15) through (21), and is composed of expenses that are not related to the primary operations of the cooperatives, that of distributing electricity to members. Amortization of Acquisition Adjustment (item 15) is the amount of the electric plant acquisition adjustment that has been determined to be amortized annually. Property Losses Chargeable to Operations (item 16) is the charge made to amortize any extraordinary property losses suffered by the cooperatives. If by charging all of an unforeseen property loss to one year's operations the financial soundness of the cooperative is impaired, the REA will approve setting up the loss in a separate asset account which is then amortized over a period of years.

Amortization of Loan Expense (item 17) is the periodic charge to operations of a portion of the expenses incurred in the obtainment of loans from the REA. The REA recommends that such loan expenses by amortized over the life of the loan. Items (18) and (19), Interest on Long Term Debt (item 18) and Interest Charged to Construction (item 19) relate to the interest expense incurred on REA loans. The amount of interest charged as an expense each year is the sum of the interest due on loans that are in the repayment period and the amount of deferred interest

accruing on loans that are not yet in the repayment period, minus the interest that is charged to construction. Interest on the long term debt of the cooperatives increased from $274,000 in 1947 to $889,000 in 1952 (Table 6), a 224 percent increase over the period.

Other Revenue Deductions (item 20) contains miscellaneous expenses, the total of which is never very large. Total Other Expenses (item 21) is the total of the expense items in this section. The Total Cost of Electric Service (item 22) is the sum of all previous items of Table 5 (items 2 through 21). It was $1,749,000 in 1947 and increased to $5,230,000 in 1952 (Table 6), an increase of 200 percent over the period.

Patronage Capital and Margins

The remaining items on the combined operating statement (items 23 through 29) are grouped together for the purposes of this discussion. Patronage Capital (item 23) is the difference between Operating Revenue and Patronage Capital (item 1) and Total Cost of Electric Service (item 22). Thus, patronage capital is the net operating margin for the particular year. Patronage capital was $177,000 in 1947, and for the first nine months of 1952 amounted to $35,000. Adjustments of Patronage Capital (item 24) contains mainly expenses that were omitted through error or which are applicable to a prior operating period. The

amount in this account is deducted from the patronage capital to arrive at Patronage Capital Adjusted (item 25). The adjusted patronage capital amounted to $154,000 in 1947, and for the first nine months of 1952 amounted to $34,000.

The next three items (items 26 through 28) are related to activities that are not considered to be a part of the operations of providing cooperative members with electric service. Non-Operating Revenues (item 26) include such items as interest income and income from merchandising sales. The Non-Operating Expenses (item 27) are the expenses charged against the non-operating income. Total Non-Operating Margins (item 28) is the difference between the above two items (items 26 and 27). Non-operating margins amounted to $11,000 in 1947, and amounted to $24,000 for the first nine months of 1952.

Patronage Capital and Margins (item 29) is the final item of Table 5 and is the sum of Patronage Capital Adjusted (item 25) and Total Non-Operating Margins (item 28). Patronage Capital and Margins were $165,000 in 1947, and were $59,000 for the first nine months of 1952. Patronage Capital and Margins were highest in 1947 and were smallest in 1949 when they amounted to $12,000.

Loan Fund Transactions

Rural electric cooperatives secure the funds necessary for the construction of their distribution systems

through loans from the REA. Applications for loans are made on the basis of engineering and cost estimates prepared by the personnel of the cooperatives. Such applications are made on a project basis as the cooperative extends service to additional members, rather than one loan application being made to cover all construction projects. Data on this phase of the operations of the cooperatives are shown in Table 7.

When the REA approves a loan application, it allocates the amount to the cooperative. The total allocations made to the sixteen Oklahoma cooperatives are shown as item (1), covering the period 1947 through September 30, 1952. Total funds allocated to the sixteen Oklahoma cooperatives through 1947 was $23,000,000. By September 30, 1952 this had increased to $55,000,000. The large increase indicates the rapidity with which the rural electrification program has been growing since the end of World War II.

As the cooperatives need funds to finance the construction projects, they are requisitioned from the REA. The amount of such funds received is shown as Total REA Advances (item 2). The amount of funds advanced to the sixteen Oklahoma cooperatives increased from $17,000,000 in 1947 to $47,000,000 on September 30, 1952. Interest begins to accrue on these funds as they are advanced to the cooperatives, but the interest payment is deferred until five years after the date of the loan contract. The amount of

TABLE 7

LOAN FUND TRANSACTIONS OF 16 OKLAHOMA REA COOPERATIVES, ANNUAL AND CUMULATIVE, 1947-1952*
(Thousands of dollars)

Report Items	Through 1947	1948	1949	1950	1951	1952	1948 to 1952	Through 1952	
(1) Total Allocations.....	$22,877.5	$9,348.0	$9,780.0	$7,945.0	$3,810.0	$1,512.0	$32,395.0	$55,272.5	(1)
(2) Total REA Advances.....	$17,389.2	$6,392.9	$8,018.9	$6,725.0	$6,110.7	$2,926.0	$30,173.5	$47,562.7	(2)
(3) Interest Accrued-Deferred....	261.1	187.6	306.5	453.9	523.5	394.2	1,865.7	2,126.8	(3)
(4) Obligations Assumed and Transferred (Net).....	10.9	-2.8	-3.8	-2.9	932.2	0.0	922.7	933.6	(4)
(5) Gross Obligation to REA.....	$17,661.2	$6,577.7	$8,321.6	$7,176.0	$7,566.4	$3,320.2	$32,961.9	$50,623.1	(5)
(6) Payments Applied Against Principal.....	$ 595.0	$ 308.0	$ 280.5	$ 518.3	$ 449.2	$ 446.7	$ 2,002.7	$ 2,597.7	(6)
(7) Advance Payments (Cushion of Credit).....	241.6	59.6	31.7	-9.1	242.9	274.7	599.8	841.4	(7)
(8) Total Payments to REA.....	$ 836.6	$ 367.6	$ 312.2	$ 509.2	$ 692.1	$ 721.4	$ 2,602.5	$ 3,439.1	(8)
(9) NET OBLIGATION TO REA.....	$16,824.6	$6,210.1	$8,009.4	$6,666.8	$6,874.3	$2,598.8	$30,359.4	$47,184.0	(9)

*Source: Compiled from reports of individual cooperatives.

Note: Data refer to end of year, except that data for 1952 refer to first nine months.

Interest Accrued-Deferred (item 3) was $261,000 in 1947. It rose to more than $2,000,000 on September 30, 1952.

Obligations Assumed and Transferred (Net), item (4), indicates the transfer of loan obligations from one cooperative to another as the result of an equivalent transfer of property. The balance in this account prior to 1951 was due to the assumption by an electric cooperative of an obligation to REA by a locker plant. The amount in this account decreased each year from $10,900 in 1947 to $1,400 in 1950. In 1951 it increased $932,000 because one cooperative paid off its $1,400 obligation and a second cooperative assumed a $933,600 obligation formerly held by a third cooperative.

The Gross Obligation to REA (item 5) is the sum of three items, REA Advances, Interest Accrued-Deferred, and Obligations Assumed and Transferred (Net). The gross obligation increased from $17,661,000 in 1947 to $50,623,000 on September 30, 1952.

The gross obligation to the REA is reduced as cooperatives make payments on the principal of the loans. The loans are made for a period of thirty-five years with a five-year period during which no payments are made. The full amount of the loan and the accrued interest are amortized in equal quarterly payments over the remaining thirty years of the loan. The quarterly payments made to the REA are composed of payments on current interest, deferred interest, and principal. The current interest payment is a

charge against current operating revenue, and the deferred interest payment reduces the balance in the interest accrued-deferred account. The amount shown in the interest accrued-deferred account is a net figure. The principal payment reduces the loan balance due the REA. If an assumed obligation is being paid off, the quarterly payment will include the required amount for this purpose, and the balance in this account will be reduced.

Thus, the gross obligation to REA (item 5) is reduced only by the payments made to retire the principal of the loans. These payments are of two types. Payments Applied Against Principal (item 6) contains the amount of the principal that has become due and was paid. Advance Payments (item 7) contains the amount of payments on principal made in advance of the due date. Through 1947 the cooperatives had paid principal due of $595,000. Payments made in advance of the due date amounted to $242,000. Between 1947 and 1952 cooperatives retired $2,000,000 of principal that came due and made advance payments of $600,000. The total of both types of payments over the life of the cooperatives was $3,400,000.

A qualification must be made to the above statement on the contents of Payments Applied Against Principal. In addition to the payments on principal that have come due, it contains payments to retire loans in full before their maturity date. For example, in 1950 advance payments are

shown to be negative. This is because one cooperative applied some of its advance payments toward retiring one loan in full. The result was to make the amount recorded as Payments Applied Against Principal (item 6) relatively large in 1950, while the amount recorded as Advance Payments (item 7) was relatively small. The amount of advance payments applied against the loan was sufficiently large to more than cancel the advance payments made by the other cooperatives in 1950.

Total Payments to REA (item 8) is the sum of the two previous accounts (items 6 and 7). The final item in the table, Net Obligation to REA, is the difference between Gross Obligation to REA (item 5) and Total Payments to REA (item 8). The net obligation of the cooperatives increased from $16,800,000 in 1947 to $47,200,000 on September 30, 1952. This total obscures the fact that three of the cooperatives experienced decreasing net obligations in 1952, the largest decrease being slightly over $17,000. As long as the advances from the REA and the accrued deferred interest amount to more than the principal and advance payments to the REA, a cooperative will experience an increasing net obligation to the government.

The Application of Funds Statement

Accountants make use of various statements in the analysis of the financial condition of business organizations.

One of these is the Application of Funds Statement, the purpose of which is to show the working capital position of the business. Working capital is the excess of current assets over current liabilities. It reveals the liquid position of the business, that is, the excess of cash and other assets that can easily be converted into cash over the liabilities that will come due in a relatively short period of time, usually within a year.

The application of funds statement shows the increases and decreases in all balance sheet accounts except those that are either current assets or current liabilities. The latter two types of accounts are summarized as working capital, which is the difference between the two. It is the balancing item in the statement. The balance sheet accounts are classified as to whether each is a source or use of funds. The difference between the total sources and uses should equal the difference between the current assets and current liabilities, that is, the working capital. The application of funds statement is compiled by taking the difference between the balance sheet accounts at the beginning and end of the year for which the statement is made. In this way the sources and uses of funds for the year and the change in working capital are shown.

Application of Funds Statement of
16 Oklahoma Cooperatives

In order to prepare an application of funds state-

ment it is desirable to have access to the details of the composition of the balance sheet accounts. Such details are not, however, available for a study of this type. The balance sheet accounts show the accounts as of the end of the year. This lack of detail does not alter the end result, however, for the result of the totality of transactions is contained in the balance sheet accounts.

In preparing this statement for the 16 Oklahoma REA cooperatives the writer obtained advice and suggestions from several individuals who are active in various areas of the field of accounting. Members of the accounting staff of the University of Oklahoma, REA accounting personnel, and personnel of the cooperatives were generous with their time and helpful in working out some of the problems encountered in the preparation of this statement.[11]

The accounts appearing in the application of funds statement (Table 8) were taken from the combined balance sheet (Table 4) and the report of loan fund transactions (Table 7), presented earlier in this chapter. When possible and desirable, the balance sheet accounts have been combined and presented as a single item in the application of funds statement. The balances in all of the balance sheet

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[11]The writer is especially indebted to Professor Dewey L. Barnes, C.P.A. and member of the faculty of the Accounting Department of the University of Oklahoma; Professor Thomas Harry McKinney of the accounting staff of the University of Oklahoma; and two official auditors of the REA.

TABLE 8

APPLICATION OF FUNDS OF 16 OKLAHOMA REA COOPERATIVES, ANNUAL AND CUMULATIVE, 1947-1952[a]
(Thousands of dollars)

Sources and Uses of Funds[b]	Through 1947	1948	1949	1950	1951	1952	1948 to 1952	Through 1952	
Sources of Funds									
(1) Patrons' Capital (✓).....	$ 257.6	$ 40.2	$ 40.2	$ 53.6	$ 47.8	$ 46.4	$ 228.2	$ 485.8	(1)
(2) Advances from REA (✓).....	17,389.2	6,392.9	8,018.9	6,725.0	6,110.7	2,926.0	30,173.5	47,562.7	(2)
(3) Obligations Assumed and Transferred (Net)(✓).....	10.9	- -	- -	- -	932.2	- -	922.7	933.6	(3)
(4) Contributions in Aid of Construction (✓).....	38.8	19.3	14.1	31.0	22.8	35.3	122.5	161.3	(4)
(5) Other Deferred Credits (✓)..	25.3	9.7	57.3	16.2	21.3	- -	81.6	106.9	(5)
(6) Materials and Supplies (-)..	- -	- -	73.1	980.2	- -	373.9	517.3	- -	(6)
(7) REA Construction Fund (-)...	- -	- -	- -	- -	301.5	352.7	- -	- -	(7)
(8) Accounts Payable (✓).....	458.6	374.5	- -	911.5	- -	- -	- -	298.2	(8)
(9) Reserve for Depreciation (✓)	1,542.9	1,075.3	936.7	1,160.3	1,105.4	1,011.1	5,288.8	6,831.7	(9)
(10) Reserve for Acquisition Adjustment (✓).....	- -	- -	20.3	43.2	70.5	13.5	147.5	147.5	(10)
(11) Deferred Interest (✓).....	261.1	187.6	306.5	453.9	523.5	394.2	1,865.7	2,126.8	(11)
(12) Margins and Equities (✓)....	335.4	74.1	- -	- -	- -	34.5	- -	139.6	(12)
(13) Other Debits (-).....	- -	- -	- -	233.6	95.6	48.9	284.6	- -	(13)
(14) TOTAL SOURCES.....	$20,319.8	$8,173.6	$9,467.1	$10,608.5	$9,231.3	$5,236.5	$39,632.4	$58,794.1	(14)
Uses of Funds									
(15) Fixed Assets (✓).....	$15,710.5	$7,133.3	$8,194.4	$ 9,179.5	$5,781.0	$3,832.2	$34,120.4	$49,830.9	(15)
(16) Payments to REA (✓).....	836.6	367.6	312.2	509.2	692.1	721.4	2,602.5	3,439.1	(16)
(17) Obligations Assumed and Transferred (Net)(-).....	- -	2.8	3.8	2.9	- -	- -	- -	- -	(17)
(18) Other Debits (✓).....	393.1	85.2	8.3	- -	- -	- -	- -	108.5	(18)
(19) Other Deferred Credits (-)..	- -	- -	- -	- -	- -	22.9	- -	- -	(19)
(20) Materials and Supplies (✓)..	2,027.6	295.8	- -	- -	614.1	- -	- -	1,510.3	(20)
(21) REA Construction Fund (✓)...	617.4	153.0	324.7	320.2	- -	- -	143.7	761.1	(21)
(22) Accounts Payable (-).....	- -	- -	259.2	- -	1,089.8	97.4	160.4	- -	(22)
(23) Margins and Equities (-)....	- -	- -	5.1	189.2	110.1	- -	195.8	- -	(23)
(24) Working Capital (✓).....	734.6	135.9	359.4	407.5	944.2	562.6	2,409.6	3,144.2	(24)
(25) TOTAL USES.....	$20,319.8	$8,173.6	$9,467.1	$10,608.5	$9,231.3	$5,236.5	$39,632.4	$58,794.1	(25)

[a]Source: Compiled from Tables 4 and 7 of this study.

[b]Data refer to end of year, except that data for 1952 refer to September 30.

accounts except one, the Total Long Term Debt account (item 25 on the combined balance sheet), have been included in the application of funds statement. In the place of the long term debt account, four items have been taken from the report of loan fund transactions. These are Advances From REA (item 2), Net Obligations Assumed and Transferred (item 3), Deferred Interest (item 11), and Payments to REA (item 16). These appear in the report of loan fund transactions as items (2), (3), (4), and (8) respectively. These four accounts record the transactions affecting the long term debt account.

As was indicated earlier, the balance sheet accounts are classified as either a source or a use of funds in the application of funds statement. Each of these categories of funds will now be taken up separately.

Sources of Funds. Patrons' Capital (item 1) is item (24) of the combined balance sheet, and is composed of membership fees and patronage capital credits. The nature of all of the balance sheet accounts was indicated in the discussion of Table 4 earlier in this chapter. Patrons' Capital amounted to over $257,000 through 1947, and increased to almost $486,000 on September 30, 1952.

Advances from REA (item 2) is item (2) of the report of loan fund transactions. This account shows the amount of loan funds that the cooperatives received from the REA for use in the construction of the electric systems. Through

1947 advances from the REA amounted to approximately $17,400,000, and on September 30, 1952, the total of advances was over $47,500,000. The funds from this source account for over three-fourths of the funds from all sources.

Net Obligations Assumed and Transferred (items 3 and 17) arise as the result of the transfer of obligations and assets among cooperatives. This account appears as both a source and a use of funds. It is a source of funds when the balance in the account increases, and is a use of funds when there is a decrease. The amount in this account was negligible until 1951, when the balance was over $930,000, and this was relatively unchanged on September 30, 1952.

Contributions in Aid of Construction (item 4) is item (31) on the combined balance sheet, and is the record of the amount of funds flowing into the cooperatives from contributions of cash or assets by units of government or persons. The amount in this account increased from almost $39,000 in 1947 to over $161,000 on September 30, 1952.

Other Deferred Credits (items 5 and 19) is item (32) on the combined balance sheet. An increase in this account is a source of funds, and a decrease is a use of funds. There was an increase in this account every year except 1952. The balance in this account is composed of credits the final disposition of which has not been determined, and advance payments made by consumers. There was over $25,000 in this account in 1947, and over $106,000 on September 30, 1952.

Materials and Supplies (items 6 and 20) is item 14 on the combined balance sheet, and indicates the amount of funds the cooperatives had invested in materials and supplies for use on construction projects and in general operations. When this account appears as a source of funds, a decrease in the balance in this account is indicated. On the contrary, an increase in this account indicates a use of funds. The balance in this account decreased in 1949, 1950, and 1952. The amount of funds invested in materials and supplies in 1947 was over $2,000,000, and on September 30, 1952, the amount in this account was approximately $1,500,000.

The REA Construction Fund (items 7 and 21) is item (9) on the combined balance sheet. A decrease in this account indicates a source of funds, and an increase indicates a use of funds. There were two years, 1951 and 1952, in which the balance in this account decreased. The balance in this account in 1947 was over $617,000, and increased to over $761,000 on September 30, 1952.

Accounts Payable (items 8 and 22) is item (26) on the combined balance sheet. An increase in this account indicates a source of funds, and a decrease indicates a use of funds. The balance of over $458,000 in this account in 1947 decreased to less than $300,000 on September 30, 1952. There were large changes in the balance in this account in 1950 and 1951. The increase of over $900,000 in 1950 was

due to one cooperative recording an assumed REA obligation as an account payable. The next year, 1951, this obligation was transferred to another account (item 3 of the application of funds statement), which resulted in a total decrease of accounts payable in that year of over $1,000,000.

Reserve for Depreciation (item 9) is item (5) on the combined balance sheet. This item is second in importance to advances from the REA as a source of funds. This account contained a balance of over $1,500,000 in 1947, and on September 30, 1952, this had increased to over $6,800,000. Over the life of the cooperatives to the latter date this item accounted for approximately twelve percent of the total sources of funds.

The Reserve for Acquisition Adjustment (item 10) is item (6) on the combined balance sheet, and is a record of the amount of the Electric Plant Acquisition Adjustment (item 2 on the combined balance sheet) that had been amortized. A balance in this account first appeared in 1949, when the amount recorded in the account was about $20,000. The balance in this account was over $147,000 on September 30, 1952.

Deferred Interest (item 11) is item (3) on the report of loan fund transactions. This item ranks third in importance as a source of funds over the life of the cooperatives, accounting for almost four percent of the total sources of funds. The deferred interest account contains

the amount of interest charged on REA loans that has not yet been paid.

Margins and Equities (items 12 and 23) is item (38) on the combined balance sheet. This account contains the operating and non-operating margins and the other capital of the cooperatives. An increase in this account indicates a source of funds and a decrease indicates a use of funds. The balance in this account was over $335,000 in 1947 and decreased to about $140,000 on September 30, 1952.

Other Debits (items 13 and 18) is item (20) on the combined balance sheet. This is a combination account that contains the balances in the Unamortized Loan Expense, Extraordinary Property Losses, and Other Deferred Debits accounts. A decrease in this account indicates a source of funds and an increase indicates a use of funds. The balance in this account was almost $400,000 in 1947 and had decreased to about $108,000 on September 30, 1952.

Total Sources (item 14) is the final item in this section of the application of funds statement and is the sum of all of the preceding items. The total of all sources through 1947 was over $20,000,000, and on September 30, 1952 the total was almost $59,000,000. This is the total flow of funds into the cooperatives from all sources with the exception of funds from the sale of services that were used to pay the operating expenses of the cooperatives. Funds from the sale of services but which were not used to pay operating

expenses, were included in the accounts discussed above.

Uses of Funds. The first item in this section of the application of funds statement is Fixed Assets (item 15). This is item (4) of the combined balance sheet, a summary account containing the balances in the Electric Plant, Electric Plant Acquisition Adjustment, and Construction Work in Progress accounts. Fixed assets account for almost eighty-five percent of total uses of funds over the life of the cooperatives. The balance in the fixed assets account increased from over $15,000,000 in 1947 to almost $50,000,000 on September 30, 1952.

Payments to REA (item 16) is item (8) on the report of loan fund transactions, and is the total of all payments made to the REA for retirement of loan obligations. This item does not include interest payments made to the REA, for such payments are charged as an expense of operations and appear on the operating statement. The item is made up of two types of payments, those applied against loan principal that is due and those made in advance of the date due.

The next seven items in this section of the application of funds statement (items 17 through 23) are also listed in the previous section of the statement, and have already been discussed. The balances in these accounts increase in some years and decrease in others. They are consequently classified as sources of funds in some years and as uses of funds in other years.

Working Capital (item 24) is the balancing item of the statement. All items on the combined balance sheet that have not appeared elsewhere in the application of funds statement are summarized as working capital. As was indicated earlier, working capital is the difference between the current assets and the current liabilities. However, some of the items that appear on the balance sheet as current assets or current liabilities are not included in working capital, but have been listed separately as either sources or uses of funds. This is the case with those items that primarily affect the fixed asset accounts. Such items include Materials and Supplies, REA Construction Fund, and Accounts Payable. The REA construction fund is used only for the construction of fixed assets, and the balances in the other two accounts are mainly the result of the purchase of materials and supplies for use in construction. Thus working capital (item 24) is arrived at by totaling all other current and accrued assets and deducting from this total the sum of all other current and accrued liabilities. In 1947 working capital was over $700,000 and increased to more than $3,000,000 on September 30, 1952.

Total Uses (item 25) is the sum of working capital and all other uses. As was the case with the total sources of funds, the total uses of funds includes all uses of funds except those that were used to pay the operating expenses of the cooperatives. The total uses are equal to the total

sources, over $20,000,000 in 1947 and almost $59,000,000 on September 30, 1952.

Summary. The data for the first year presented in the application of funds statement, 1947, have been recorded as they appear on the other two reports. For the remaining years only the increase or decrease has been recorded. Consequently some items appear as both a source and a use of funds, depending on whether the balance in the accounts increases or decreases between two years. For example, an increase in materials and supplies indicates a use of funds, while a decrease in this account indicates a source of funds. Whether an item increased or decreased is indicated respectively by a plus or minus sign immediately following it.

The application of funds statement of the 16 Oklahoma REA cooperatives shows the sources of funds which are used to build up the fixed assets and the working capital. The major source of funds is Advances from REA (item 2), which accounts for eighty percent of total sources over the life of the cooperatives. The depreciation reserve account and the deferred interest account are the other two large sources of funds. The major use of funds is the increase in the size of the fixed assets. Payments to the REA and the increase in working capital are the next two largest uses, with materials and supplies also accounting for a large amount.

In the application of funds statement the investment

account has been treated as a current asset and thus becomes a part of working capital. There is some basis for excluding this account from working capital on the ground that these investments are to be used to retire the long term obligation to the REA. It is true that the investments may be used to meet future payments to the REA, but they may also be used in the daily operations of the cooperatives or for the purpose of replacing worn out plant and equipment. Also, the cooperatives could refrain from making investments, in which case the working capital would consist of a larger amount of cash. Investments can readily be subtracted from working capital if it is desired to view working capital as excluding investments.[12]

Summary

The financial data presented in this chapter indicate the rapid growth of the 16 Oklahoma REA cooperatives during the period from 1947 through September 30, 1952. Approximately two-thirds of the funds from the REA were advanced during this period, and a like proportion of the distribution facilities was constructed from 1947 through 1952. By September, 1952 the cooperatives were taking in revenue from the sale of electricity equal to about two and three-

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[12]For a discussion of this see Committee on Accounting Procedure, Accounting Research Bulletins (New York: American Institute of Accountants, August, 1947), pp. 248-249.

quarters times the amount in 1947. Since the cooperatives did not increase rates during this period this is indicative of the increase in the consumption of electricity by the members. The working capital position of the cooperatives has improved steadily throughout the period, and advance payments of over $840,000 were made over the life of the cooperatives. About $600,000 of the advance payments were made during the period covered by this study.

CHAPTER IV

OPERATIONS OF REA COOPERATIVES

Introduction

In this chapter data showing the operating revenues and expenses of the REA-financed systems are analyzed. In addition to the sixteen Oklahoma cooperatives, some attention is given to all REA cooperatives in Oklahoma and to all REA borrowers in the nation. Through comparison of the operations of the systems in Oklahoma with all systems in the nation some of the important factors affecting rural electrification are indicated.

In compliance with the Rural Electrification Act of 1936, as amended, the rural electrification program has been based on the idea that electric power is to be made available to the entire rural population. The approval of loan applications by REA is partially dependent upon whether or not the projects for which the loans are asked fit into a plan for complete area coverage. It is the responsibility of each individual cooperative to extend service to all in its area who desire electric power.

The attention that rural electrification personnel

have given to the problem of bringing electricity to the rural areas at the cheapest possible price is illustrated by a special development within the program. The minimum charge for electric service by the cooperatives is about $2.50 per month in the South and Southwest, and from $3.50 to $4.00 in the Northern states. The minimum charge was higher than could be afforded by many in the rural areas, especially in the South where there is much farm tenancy. The solution to this problem was the development of a low-power transformer that reduced the cost of service to these low income consumers of electricity and enabled a reduction in the minimum charge. The early realization of, and attention to, this problem is indicated by the following quote from the Administrator's report in 1939:

> Until recently the smallest transformer on the market had a 1,500-volt-ampere capacity and sold for $38. Together with the service pole and equipment, it cost between $80 and $90 per installation. REA made a number of attempts to obtain a low-cost, low-capacity transformer. One was produced, but it proved unsatisfactory, and the type was abandoned. In 1939, however, REA was able to obtain a 600-volt-ampere transformer which has thus far met all tests.
>
> With this transformer, which sells for $20, goes a new gap for lightning protection, and a $3 circuit breaker so designed that the farmer can safely re-close it himself.
>
> . . . . . .
>
> This service is designed only for the low-income farmer who can afford no more than about $1 a month for electricity. The transformer has sufficient capacity to permit simultaneous operation of (for example) a few light bulbs, a radio and electric iron.[1]

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[1]U. S. Department of Agriculture, 1939 Report of Rural Electrification Administration (Washington: Government Printing Office, 1940), p. 81.

At the various meetings of the managers of Oklahoma cooperatives attended by the writer, it was evident that management was conscious of the relation between service at low cost and ability to retire the cooperatives' debt. The emphasis at these meetings was primarily on the methods of increasing the consumption of electricity, for the higher the consumption per consumer the higher will be the revenue per mile of line making up the distribution system.

The policies of the cooperatives in Oklahoma in this respect emphasize two programs. The first is aimed at increasing the consumption of electricity by offering the inducement of low rates. As is the case with commercial power companies, the rural electric cooperatives set up their rate schedule so as to lower the per kilowatt hour cost to the consumer as his total consumption goes up. In addition many cooperatives have at various times set up special rate schedules in order to induce their members to install various types of electrical appliances. As an added inducement they have in some instances been willing to stand all or a major portion of the installation cost of such items as electric ranges and water pumps.

The second policy of the Oklahoma cooperatives is aimed at selling farmers on the idea of using electrical equipment in their farming operations. Many cooperatives have in the past few years employed a full-time man whose job is to explain the effective use of electricity on the

farm. Reference to item (6), power use expenses, in Table 5, shows the trend in the use of this policy. The expenses for this item increased from $29,400 in 1947 to $112,800 in 1952, adjusting the 1952 figure to a full year.

The primary task of the power use man is education of farmers in the use of electrical appliances, and to advise them as to the technical specifications of equipment needed to do a particular job. For example, the power use man is indispensable in the planning of an irrigation system for a single farm, or in the case where a district irrigation project is being planned. Such service as this on the part of cooperatives is aimed at increasing the consumption of electricity and at the same time influencing the efficient economic development of farm units.

A third approach to the task of increasing the use of electricity should not be overlooked. Farmers have been interested in the constant migration of the farm population to urban areas. They feel that a part of this migration is due to the lack of many living comforts in the rural areas, and that by bringing comforts to these areas through the wide use of electric power this migration will be slowed down. Regardless of the merits of this approach to the problem of farm migration, it points up one of the emphases of the rural electrification program. One of the aims of the program has been to eliminate much of the drudgery of farm life, both in the realm of farming operations and in

the home.

The remainder of this chapter presents data showing the operating revenues and expenses of rural electric cooperatives that result from providing electric power. The data are analyzed for the purpose of showing the important items of expense, and the relations between various expenses and revenues.

Annual Revenues and Expenses of All REA Borrowers

Table 9 provides summary data on the annual revenues and expenses of all REA borrowers for 1941 through 1951. The table shows the trend in revenues and the trend in operating expenses incurred in delivering electric power to the several million customers of the REA borrowers. From 1941 through 1946 revenues increased 150 percent. If 1947 is used as a new base, revenues increased almost 150 percent from 1947 through 1951. Operating expenses over the same period have increased at a somewhat higher rate, increasing from 55 percent of revenues in 1941 to almost 62 percent in 1951.

Interest expense changed very slightly in amount from 1941 through 1946, while from 1947 to 1951 it almost tripled. The stability of the interest expense from 1941 to 1946 is due to the relatively small amount of loan funds advanced and the small amount of construction that took place during the war years. During the period from 1941

TABLE 9

REVENUES AND EXPENSES OF ALL REA BORROWERS, CALENDAR YEARS, 1941-1951[a]
(Thousands of dollars)

Year	Operating Revenues	Operating Expenses		Interest Expense		Depreciation Expense		Net Margin After Depreciation[b]		Year
		Amount	Percent of Revenues	Amount	Percent of Revenues	Amount	Percent of Revenues	Amount	Percent of Revenues	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1941	$ 35,022.1	$ 19,255.9	55.0	$ 7,535.2	21.5	c	c	c	c	1941
1942	46,927.3	26,870.7	57.3	8,784.3	18.7	c	c	c	c	1942
1943	55,587.6	31,781.3	57.2	9,232.8	16.6	c	c	c	c	1943
1944	64,042.6	36,640.8	57.2	8,750.3	13.7	c	c	c	c	1944
1945	73,102.4	42,001.5	57.5	7,507.3	10.3	$12,739.3	17.4	$11,450.7	15.7	1945
1946	89,089.8	53,581.6	60.1	8,675.2	9.7	14,670.8	16.5	12,853.3	14.4	1946
1947	114,787.8	71,944.9	62.7	11,053.9	9.6	18,015.3	15.7	14,401.8	12.5	1947
1948	151,434.6	97,583.3	64.4	14,803.7	9.8	24,906.7	16.4	14,784.7	9.8	1948
1949	196,717.3	123,303.5	62.7	20,132.7	10.2	35,907.0	18.3	17,898.9	9.1	1949
1950	241,342.5	149,316.7	61.9	26,110.2	10.8	47,676.0	19.8	18,901.0	7.8	1950
1951	$285,113.6[d]	$176,627.3	61.9	$30,828.4	10.8	$56,806.7	19.9	$21,582.7	7.6	1951

[a]Source: U. S. Department of Agriculture, 1951 Annual Statistical Report, REA (Washington: Government Printing Office, 1953), p. V.

[b]Includes net non-operating margin.

[c]Data not summarized.

[d]Does not include revenues of $27,282 reported by one REA borrower from which figures for other items were not available.

through 1946 the total amount of funds advanced was less than $265,000,000. From 1946 through 1951 the amount of funds advanced averaged over $326,000,000 annually, totaling over $1,300,000,000 over the period.[2] Interest expense as a percent of revenues decreased from a high of 21.5 percent in 1941 to a low of 9.6 percent in 1947, and thereafter increased to 10.8 percent.

The data on depreciation expense have been summarized by the REA only for the years following 1944. There was relatively little change in depreciation expressed as a percent of revenues, ranging from 17.4 percent in 1945 to a low of 15.7 percent in 1947, and a subsequent increase to 19.9 percent in 1951. The increase in the amount of depreciation expense was from $12,739,300 in 1945 to $56,806,700 in 1951, reflecting the large amount of construction following the end of World War II.

The increases in operating expenses and depreciation expense as a percent of revenues is reflected in a decrease in net margin as a percent of revenues. The net margin was $11,450,700 in 1945, or 15.7 percent of revenues, and in 1951 it was $21,582,700, or 7.6 percent of revenues.

The percent figures for any one year do not add to exactly one hundred. This is due to the inclusion of the

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[2]U. S. Department of Agriculture, REA, Annual Statistical Report, 1951 (Washington: Government Printing Office, 1953), p. VIII.

non-operating margin, while the non-operating revenues and expenses are not included. The negligible amount of non-operating margin is indicated by the fact that the totals do not exceed one hundred percent by more than one percent for any one year.

Annual Revenues and Expenses of All Oklahoma REA Borrowers

The operating revenues and expenses of all Oklahoma REA borrowers are available from 1941 through 1951 (Table 10). Operating revenues increased from 1941 through 1946 by more than 175 percent, as compared with the increase of slightly more than 150 percent in the case of all REA borrowers in the nation. Using 1947 as a new base the increase in revenues from 1947 through 1951 was 150 percent, which is about the same rate of increase for this period as was indicated by the data on all REA borrowers in the nation.

Operating expenses as a percent of revenues decreased over the period from 62.4 percent in 1941 to 54.9 percent in 1951. This is contrary to the trend in this item over the nation as a whole, which increased from 55.0 percent in 1941 to 61.9 percent in 1951. In the case of interest expense as a percent of revenues we find the reverse situation. This item for Oklahoma cooperatives follows the same general pattern of a decrease followed by a subsequent increase, but the magnitude of the pattern is considerably different. Interest expense decreased from a high of 23.0

TABLE 10

REVENUES AND EXPENSES OF ALL OKLAHOMA REA BORROWERS, CALENDAR YEARS, 1941-1951[a]
(Thousands of dollars)

Year	Operating Revenues	Operating Expenses		Interest Expense		Depreciation Expense		Net Margin After Depreciation[b]		Year
		Amount	Percent of Revenues	Amount	Percent of Revenues	Amount	Percent of Revenues	Amount	Percent of Revenues	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1941	$ 832.6	$ 519.3	62.4	$ 191.1	23.0	c	c	c	c	1941
1942	1,077.6	627.0	58.2	230.2	21.4	c	c	c	c	1942
1943	1,230.5	701.5	57.0	238.4	19.4	c	c	c	c	1943
1944	1,496.8	871.1	58.2	241.8	16.2	c	c	c	c	1944
1945	1,792.8	1,036.8	57.8	237.2	13.2	$ 343.2	19.1	$192.3	10.7	1945
1946	2,314.4	1,382.3	59.7	297.2	12.8	404.2	17.5	236.3	10.2	1946
1947	2,988.3	1,725.4	57.7	404.8	13.5	514.4	17.2	354.2	11.9	1947
1948	3,779.8	2,265.1	59.9	516.0	13.7	721.1	19.1	330.6	8.7	1948
1949[d]	4,965.1	2,867.4	57.8	738.6	14.9	1,231.9	24.8	147.8	3.0	1949
1950[d]	6,500.3	3,566.8	54.9	1,051.5	16.2	1,785.7	27.5	131.9	2.0	1950
1951[d]	$7,597.5	$4,171.6	54.9	$1,250.4	16.5	$2,186.1	28.8	$ 19.8	0.3	1951

[a]Source: Data for 1941-1943 from U. S. Department of Agriculture, Allotment, Construction, Operating, and Financial Statistics of REA-Financed Systems, 1941-1943 issues; data for 1944-1951 from U. S. Department of Agriculture, Annual Statistical Report, REA, 1944-1951 issues (Washington: Government Printing Office, 1942-1953).

[b]Includes net non-operating margin.

[c]Data not summarized.

[d]Data for 1949, 1950 and 1951 were adjusted by adding the information from the generation and transmission cooperatives in Oklahoma in order that these years would be comparable with the data for prior years.

percent of revenues in 1941 to a low of 12.8 in 1946, and has increased since that year to 16.5 percent in 1951.

Depreciation expense is another item that accounts for a rather large part of the use of revenues. Depreciation expense in 1945 amounted to $343,200 or 19.1 percent of revenues for that year. This proportion decreased slightly over the next two years, but increased rapidly thereafter to 28.8 percent in 1951. This is considerably at variance with the situation found in the case of all REA borrowers, where the high point was 19.9 percent in 1951.

The net margin shown by Oklahoma cooperatives is low in comparison to that of all REA borrowers, reflecting the higher percent that depreciation is of total revenues. Although operating expenses are a lower percent of revenues in the case of the Oklahoma cooperatives than is the case with all REA borrowers, this difference is made up by the amount by which interest expense as a percent of revenue for Oklahoma cooperatives exceeds the percent of revenues accounted for by this item in the case of all REA borrowers. The net margin for Oklahoma cooperatives reached a high of $354,200 in 1947, which was 11.9 percent of revenues, and dropped to a low of $19,800 in 1951, or 0.3 percent of revenues.

The increase in revenues over the period covered by Table 10 is an indication of the extent to which electric power has been made available to the rural areas of Oklahoma by REA cooperatives. This increase is a reflection of the

increased amount of electricity purchased from the REA cooperatives, an increase brought about both by an increase in consumption by individual consumers and by the addition of new consumers.

Annual Revenues and Expenses of 16 Oklahoma REA Borrowers

For the sixteen Oklahoma cooperatives, data on the revenues and expenses are available for 1947 through September 30, 1952 (Table 11). With the exception of one item, Operating Expenses, all of the items in Table 11 are the same as they appear in Table 5. In order to make this item for the sixteen Oklahoma cooperatives comparable with this same item for all Oklahoma cooperatives and all REA borrowers in the United States, operating expenses as shown in Table 5 have been increased by adding several other items of expense. The items added are Tax Expense, Amortization of Acquisition Adjustment, Property Losses Chargeable to Operations, Other Revenue Deductions, and Adjustments of Patronage Capital. The various categories of expense, when expressed as a percent of operating revenues, show the same general pattern as that of all Oklahoma borrowers. This is an indication that there are no important factors operating to differentiate this group of cooperatives from all of the cooperatives in Oklahoma as a group.

Operating revenues increased 174 percent between 1947 and the end of 1952, and operating expenses increased

TABLE 11

REVENUES AND EXPENSES OF 16 OKLAHOMA REA BORROWERS, CALENDAR YEARS, 1947-1952[a]
(Thousands of dollars)

Year	Operating Revenues	Operating Expenses		Interest Expense		Depreciation Expense		Net Margin After Depreciation[b]		Year
		Amount	Percent of Revenues	Amount	Percent of Revenues	Amount	Percent of Revenues	Amount	Percent of Revenues	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1947	$1,926.1	$1,174.8	61.0	$274.2	14.2	$ 323.1	16.8	$165.3	8.6	1947
1948	2,427.1	1,526.9	62.9	338.4	13.9	465.2	19.2	128.7	5.3	1948
1949	3,125.1	1,904.5	60.9	471.5	15.1	774.6	24.8	-11.6	- -	1949
1950	3,892.5	2,132.9	54.8	642.5	16.5	1,081.1	27.8	57.5	1.5	1950
1951	4,670.8	2,513.3	53.8	772.1	16.5	1,347.8	28.9	59.1	1.3	1951
1952[c]	3,958.3	2,134.7	53.9	666.6	16.8	1,122.7	28.4	58.5	1.5	1952

[a]Source: Compiled from Table 5 of this study.

[b]Includes net non-operating margin.

[c]Data for 1952 refer to first nine months.

by almost 82 percent over the same period. The net margin after depreciation for the sixteen Oklahoma cooperatives was a smaller percent of revenues than was the case with all REA borrowers in Oklahoma in every year from 1947 through 1951. In 1952, however, this net margin was 1.5 percent for the sixteen cooperatives as compared with 0.3 percent for all Oklahoma Borrowers. In 1951 the amount of the net margin for the sixteen cooperatives was more than the net margin for all Oklahoma cooperatives considered as a group. This means that in 1951 the twelve cooperatives not included in this survey had a negative net margin when considered as a group. In 1949 the sixteen cooperatives had a negative net margin of $11,600.

Operating expenses as a percent of revenues decreased from 61.0 percent in 1947 to 53.8 percent in 1951, while the data for all Oklahoma borrowers show a decrease from 57.7 percent in 1947 to 54.9 percent in 1951. The figure remains practically unchanged for the sixteen cooperatives for 1952, the figure for that year being 53.9 percent.

Interest expense as a percent of revenues increased from 14.2 percent in 1947 to 16.5 percent in 1951, and was 16.8 percent in 1952. This compares with an increase from 13.5 percent in 1947 to 16.5 percent in 1951 for all REA borrowers in Oklahoma. Depreciation expense as a percent of operating revenues increased from 16.8 percent in 1947 to

28.9 percent in 1951 for the sixteen cooperatives, while for all Oklahoma borrowers the increase was from 17.2 percent in 1947 to 28.8 percent in 1951. For the sixteen cooperatives the figure was 28.4 percent for 1952.

Expense Items as Percent of Total Cost of Electric Service

Table 12 is a computation of the total cost of providing electric service by the rural electric systems, and includes a breakdown of the various expense categories as a percent of total cost of electric service. Operating expenses, interest expense, and depreciation expense make up the total cost of electric service. REA borrowers in general make a small net margin in terms of revenues received; consequently the total cost of electric service is almost the same as the total revenues.

In the case of all REA borrowers there has been practically no change in the proportions of the total cost accounted for by the three categories of expense. In the case of all Oklahoma borrowers and the 16 Oklahoma borrowers there has been a decided shift in these proportions. In the case of all Oklahoma borrowers operating expenses as a proportion of total costs declined from 64.1 to 53.5 percent over the period 1945-1951, and the depreciation expense increased from 21.2 to 29.6 percent over the same period. Interest expense increased from 14.7 to 16.9 percent. For the sixteen Oklahoma cooperatives operating expenses as a

TABLE 12

SELECTED EXPENSES EXPRESSED AS PERCENTS OF TOTAL COST OF ELECTRIC SERVICE FOR ALL REA BORROWERS, ALL OKLAHOMA BORROWERS, AND 16 OKLAHOMA BORROWERS, CALENDAR YEARS, 1945-1951[a]
(Thousands of dollars)

Year	All REA Borrowers				All Oklahoma REA Borrowers				16 Oklahoma REA Borrowers				Year
	Total Cost of Electric Service[b]	Percent of Column (2)			Total Cost of Electric Service[b]	Percent of Column (6)			Total Cost of Electric Service	Percent of Column (10)			
		Operating Expenses	Interest Expense	Depreciation Expense		Operating Expenses	Interest Expense	Depreciation Expense		Operating Expenses	Interest Expense	Depreciation Expense	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1945	$ 62,248.0	67.5	12.1	20.5	$1,617.2	64.1	14.7	21.2	n.a.	n.a.	n.a.	n.a.	1945
1946	76,927.6	69.7	11.3	19.1	2,083.7	66.3	14.3	19.4	n.a.	n.a.	n.a.	n.a.	1946
1947	101,014.1	71.2	10.9	17.8	2,644.6	65.2	15.3	19.5	$1,772.1	66.3	15.5	18.2	1947
1948	137,293.7	71.1	10.8	18.1	3,502.2	64.7	14.7	20.6	2,330.5	65.5	14.5	20.0	1948
1949	179,343.2	68.8	11.2	20.0	4,793.1	59.0	15.3	25.7	3,150.6	60.4	15.0	24.6	1949
1950	223,102.9	66.9	11.7	21.4	6,215.0	54.7	16.7	28.5	3,856.5	55.3	16.7	28.0	1950
1951	$264,262.4	66.8	11.7	21.5	$7,331.6	53.5	16.9	29.6	$4,633.2	54.2	16.7	29.1	1951

[a]Computed from data in Tables 9, 10, and 11 of this study.

[b]Data include generation and transmission cooperatives.

proportion of total costs declined from 66.3 to 54.2 percent from 1947 to 1951; the depreciation expense increased from 18.2 to 29.1 percent; and interest expense increased from 15.5 to 16.7 percent.

The preceding tables have shown differences existing between all REA borrowers and Oklahoma REA borrowers, when the various categories of expense are expressed as a percent of operating revenues. These differences are also present when the expense categories are expressed as a percent of total cost of electric service. The first difference noted was that between operating expenses expressed as a percent of operating revenues. It was found that operating expenses as a percent of operating revenues were decreasing in the case of Oklahoma cooperatives, while they were increasing in the case of all REA borrowers.

It would appear that some light might be thrown upon this by reference to the operating expense item that is closely related to the amount of operating revenues. This item is the cost of purchased power, and this item makes up a large proportion of the total operating expenses. There is not a direct relation between the amount of power purchased by the cooperatives and the amount of operating revenues, because of the existence of rate schedules that reduce the revenues per kwh as individual consumer consumption goes up. However, the cooperatives purchase power under the same sort of declining cost per kwh schedule, so

that the cost of purchased power to the cooperatives and the revenues coming in from the sale of this power are closely related.

The Cost of Power Per Dollar of Revenues and Expenses

Table 13 shows the cost of power per dollar of operating revenues and per dollar of operating expenses for all REA borrowers, all Oklahoma borrowers, and the sixteen Oklahoma cooperatives. The data on the cost of power for all REA borrowers and all Oklahoma borrowers were taken from the Annual Statistical Report, REA, and these data for the sixteen Oklahoma cooperatives are from Table 5 of this study. The data on the operating revenues presented in Tables 9, 10, and 11 were used for the computations to arrive at the per dollar cost.

For all REA borrowers the cost of power per dollar of revenues increased from 24.6 cents in 1941 to 32.8 cents in 1951, and for all Oklahoma borrowers there was a decrease from 21.9 cents in 1941 to 17.7 cents in 1951. The cost of power per dollar of operating expenses increased for all REA borrowers from 44.6 cents in 1941 to 52.9 cents in 1951, while over the same period there was a decrease for Oklahoma borrowers from 35.1 cents to 33.0 cents.

Table 13 also includes the same data for the 16 Oklahoma cooperatives. The cost of power per dollar of operating revenues for the 16 Oklahoma borrowers is

TABLE 13

COST OF POWER FOR ALL REA BORROWERS, ALL OKLAHOMA REA BORROWERS, AND 16 OKLAHOMA REA BORROWERS, CALENDAR YEARS, 1941-1951[a]

Year	All REA Borrowers			All Oklahoma REA Borrowers			16 Oklahoma REA Borrowers			Year
	Cost of Power			Cost of Power			Cost of Power			
	Amount (Thousands of dollars)	Cost Per Dollar of Operating Revenues (Cents)	Cost Per Dollar of Operating Expenses (Cents)	Amount (Thousands of dollars)	Cost Per Dollar of Operating Revenues (Cents)	Cost Per Dollar of Operating Expenses (Cents)	Amount (Thousands of dollars)	Cost Per Dollar of Operating Revenues (Cents)	Cost Per Dollar of Operating Expenses (Cents)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1941	$ 8,583.2	24.51	44.57	$ 182.3	21.90	35.10	n.a.	n.a.	n.a.	1941
1942	11,787.6	25.12	43.87	206.7	19.18	32.97	n.a.	n.a.	n.a.	1942
1943	16,728.2	30.09	52.64	258.1	20.98	36.79	n.a.	n.a.	n.a.	1943
1944	19,622.5	30.64	53.55	325.2	21.73	37.33	n.a.	n.a.	n.a.	1944
1945	21,972.0[b]	30.06	52.31	342.0	19.08	32.99	n.a.	n.a.	n.a.	1945
1946	26,563.2[b]	29.81	49.57	419.0	18.10	30.31	n.a.	n.a.	n.a.	1946
1947	37,093.6[b]	32.31	51.56	555.9	18.60	32.22	$356.0	18.48	30.30	1947
1948	52,581.8[b]	34.72	53.88	718.6	19.01	31.72	445.7	18.36	29.19	1948
1949	66,286.5[b]	33.69	53.76	870.9[b]	17.70	30.80	526.4	16.84	27.64	1949
1950	78,783.2[b]	32.64	52.76	1,100.2[b]	17.50	32.52	669.0	17.19	31.37	1950
1951	$93,466.7[b]	32.78	52.91	$1,293.6[b]	17.68	32.99	$825.8	17.68	32.86	1951

[a]Source: Columns (2) and (5) from U. S. Department of Agriculture, Allotment, Construction, Operating and Financial Statistics of REA-Financed Systems, 1941 to 1943; and Annual Statistical Report, REA, 1944 to 1951 (Government Printing Office, 1942-1953), various pages. Column (8) is from Table 5 of this study.

Note: Operating revenues and operating expenses used for the computation of columns (3), (4), (6), (7), (9) and (10) were previously presented in Tables 9, 10 and 11 of this study.

[b]Data for these years were presented separately in the source for generation and transmission and distribution type borrowers. They have been combined in this table in order that the data for all years are comparable.

approximately the same as for all Oklahoma borrowers, decreasing from 18.5 cents in 1947 to 17.7 cents in 1951. There is a slight difference between these two groups when the cost of power is expressed in terms of operating expenses, but the difference does not seem to be of such magnitude as to be significant.

The cost of power makes up a larger proportion of the total operating expenses for all REA borrowers than for all Oklahoma borrowers. The difference existing between all REA borrowers and all Oklahoma borrowers in the cost of power per dollar of revenues is an indication that Oklahoma borrowers are paying a lower per kwh price for their power. This is borne out by computations of the REA for the year 1949, which show that the average per kwh cost of power to Oklahoma borrowers was 6.7 mills, while the cost to all REA borrowers was 8.5 mills.[3]

The difference in the cost of power for Oklahoma borrowers and all REA borrowers noted above points up the difference in the cost of power in the various states. For calendar year 1949, when the average cost of power for all REA borrowers was 8.5 mills per kwh, the range of the per kwh cost was from 4.2 mills in Oregon to 26.6 mills in the Virgin Islands. In 1949 there were twenty states that

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[3]U.S. Department of Agriculture, Report of the Administrator of the Rural Electrification Administration (Washington: Government Printing Office, 1950), p. 18.

showed an average cost of over one cent per kwh, and Alaska and the Virgin Islands both showed a cost of over 2.5 cents per kwh. Twenty-five states had a cost of less than one cent per kwh, with Idaho, Nevada, Oregon and Washington having a cost of one-half a cent per kwh or less. Of the remaining twenty-one states with an average cost of less than one cent per kwh, five of these had a cost of less than 6 mills per kwh. These five states were Alabama, California, Mississippi, Tennessee, and Texas.[4]

Interest Expense and Depreciation Expense as a Percent of Operating Revenues

While the difference in the price paid for power in Oklahoma by REA borrowers and all REA borrowers in the nation indicates the reasons for the difference in operating expenses expressed as a percent of operating revenues between the two groups, it is necessary to resort to other data in order to explain the difference existing when interest and depreciation are expressed as a percent of operating revenues. The importance of the cost of power in determining the total operating expenses and the close relationship between the amount of power purchased by the cooperatives and the amount of operating revenues enabled the use of this approach. In the case of interest and depreciation there is not this close relation to operating revenues.

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[4] Ibid.

The data indicated that the amount of operating revenues increases as the amount paid out in interest payments and the amount charged to depreciation increases. This is expected to be the case while the cooperatives are in the formative period and are increasing revenues because of the extension of lines into new areas with additional funds borrowed from REA. However true this may be, the amount of interest expense and depreciation is more directly related to the amount of funds advanced from REA. In the case of operating revenues, the effect of advances from REA is felt only slightly within a short period after the funds are advanced, since it takes some time for the funds to be converted into fixed plant which will then produce revenue; while an advance of funds results in an immediate increase in the interest expense.

The amount of depreciation charged as expense is directly related to the amount of fixed assets that result from the use of the funds advanced from REA. If $100,000 is advanced by REA for construction purposes, the value of the fixed assets resulting from the expenditure of these funds is $100,000. Depreciation is charged at a uniform rate by all REA cooperatives on the same types of fixed assets. There is no reason to believe that the type of fixed assets used by cooperatives in different parts of the country vary to any appreciable degree. Some cooperatives may have a higher proportion of their investment in

buildings than some others, but there is no reason to suspect that any state or area of the nation would show a distinct pattern in this respect. Even if this turned out to be the case, the proportion of total funds invested in buildings is relatively small compared with the proportion invested in distribution lines, to which are applied the same depreciation rate the nation over.

Table 14 shows interest and depreciation expenses expressed in terms of per dollar of REA advances for all REA borrowers, for all Oklahoma REA borrowers, and for the sixteen Oklahoma REA borrowers covered in this survey. In the case of interest expense expressed in terms of per dollar of REA advances it is found that there is essentially no difference between Oklahoma borrowers and all REA borrowers. Interest expense amounted to about two and one-third cents per dollar of advances in 1941, and decreased to 1.6 cents in 1951. The sixteen cooperatives covered in our survey show the same pattern over the period 1947 to 1951.

Depreciation expense is available for the years 1945 through 1951 for all REA borrowers and all Oklahoma borrowers, and from 1947 through 1951 for the sixteen cooperatives covered in our survey. From 1945 through 1948 there is a slight difference in depreciation expressed as per dollar of advances between all REA borrowers and all Oklahoma borrowers. Following 1948 there is practically no difference between the two groups, and the sixteen cooperatives

TABLE 14

INTEREST AND DEPRECIATION EXPENSE PER DOLLAR OF REA ADVANCES FOR ALL REA BORROWERS, ALL OKLAHOMA REA BORROWERS, AND 16 OKLAHOMA REA BORROWERS, CALENDAR YEARS, 1941-1951*
(Cents)

Year	Interest Expense Per Dollar of REA Advances			Depreciation Expense Per Dollar of REA Advances			Year
	All REA Borrowers	All Okla. Borrowers	16 Okla. Borrowers	All REA Borrowers	All Okla. Borrowers	16 Okla. Borrowers	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1941	2.27	2.15	n.a.	n.a.	n.a.	n.a.	1941
1942	2.41	2.54	n.a.	n.a.	n.a.	n.a.	1942
1943	2.44	2.43	n.a.	n.a.	n.a.	n.a.	1943
1944	2.15	2.15	n.a.	n.a.	n.a.	n.a.	1944
1945	1.62	1.64	n.a.	2.75	2.37	n.a.	1945
1946	1.46	1.47	n.a.	2.46	2.00	n.a.	1946
1947	1.35	1.48	1.58	2.19	1.88	1.86	1947
1948	1.34	1.37	1.42	2.25	1.92	1.96	1948
1949	1.40	1.41	1.48	2.50	2.36	2.44	1949
1950	1.53	1.63	1.67	2.79	2.78	2.81	1950
1951	1.58	1.60	1.73	2.92	2.82	3.02	1951

*Source: Computed from data in Tables 9, 10, and 11.

Note: n.a. means not available.

covered in our survey follow the pattern of the Oklahoma cooperatives as a whole. The slight disparity in the depreciation expense between the two groups is indicative of factors operating to vary the rate at which advanced funds are converted into completed plant. We would expect that the disparity would be greatest in the period when most construction was taking place, with a consequent disappearance of the disparity when the rate of construction slowed down. The data tend to bear this out.

Summary

Operating revenues, reflecting the increased use of electric power in the rural areas, have been increasing at a very rapid rate during the past decade. This is because of the increased number of consumers served and an increase in the average consumption per consumer. This development manifests itself on both the national and state level, and with the sixteen cooperatives that are the subject of this study. The present rate of increase resulted in a doubling of revenues every five or six years.

For all REA borrowers in the nation operating expenses as a percent of revenues increased from 55.0 percent to 61.9 percent between 1946 and the end of 1951; interest expense decreased from 21.5 percent of revenues in 1946 to 10.8 percent in 1951; and depreciation expense increased from 17.4 percent of revenues in 1945 to 19.9 percent in

1951. The net margin after depreciation decreased from 15.7 percent of revenues in 1945 to 7.6 percent in 1951. For all REA borrowers in Oklahoma, operating expenses as a percent of revenues decreased from 62.4 percent in 1941 to 54.9 percent in 1951; interest expense decreased from 23.0 percent in 1941 to 16.5 percent in 1951; depreciation expense increased from 19.1 percent in 1945 to 28.8 percent in 1951. Net margin after depreciation decreased from 10.7 percent of revenues in 1945 to 0.3 percent in 1951. For the sixteen Oklahoma Cooperatives, operating expenses as a percent of revenues decreased from 61.0 percent in 1947 to 53.8 percent in 1951; interest expense increased from 14.2 percent of revenues in 1947 to 16.5 percent in 1951; depreciation expense increased from 16.8 percent of revenues in 1947 to 28.9 percent in 1951.

A breakdown of the total cost of electric service shows that for all REA borrowers there has been no significant change in the proportions of total cost accounted for by the three categories of expenses, operating expenses, interest expense and depreciation expense. For all Oklahoma borrowers and the sixteen Oklahoma Cooperatives, operating expenses have declined as a percent of the total cost, and the interest and depreciation expense both increased. An analysis of the cost of the major component of operating expenses, power, showed that REA borrowers in Oklahoma pay less per kwh than the average cost to all REA borrowers in

the nation. About half of the states had a power cost of more than one cent per kwh, in 1949, and the lowest cost in any state was 4.2 mills in that year.

An analysis of interest expense and depreciation expense in relation to the amount of funds advanced showed that there was no appreciable difference between all REA borrowers in the United States and those in Oklahoma. The cooperatives in Oklahoma appear to have an advantage over all cooperatives in the nation as a group in the cost of power. As a result operating expenses make up a smaller proportion of the total cost of their service as compared with all REA borrowers in the nation. The other major expense items, interest and depreciation, appear to be of about the same degree of importance to both groups when they are considered in relation to funds advanced, the item to which they are most closely related.

CHAPTER V

EVIDENCES OF A SURPLUS

Introduction

The basic data on the sixteen Oklahoma REA cooperatives with which this study is concerned have been presented in the preceding chapters as Tables 4, 5, and 7. These tables are the Balance Sheet, the Operating Statement, and the Report of Loan Fund Transactions respectively. The remainder of this study is concerned with the analysis of the operations of these cooperatives in respect to the accumulation of surplus funds. For the purposes of this study the word "surplus" means the amount by which the flow of funds into the cooperatives exceeds the payments currently required to be made. The accounting system used by the cooperatives is examined as a necessary prerequisite to the discovery of the nature and existence of the surplus.

The Accounting System

The accounting system used by the REA cooperatives is essentially the same as that used by any business enterprise. The system is only slightly different from that used by the commercial power companies that come under the

regulation of the Federal Power Commission. The manual outlining the system of accounts to be used by REA financed electric systems contains the following general statement:

> The accounting system described in this manual can readily be understood by anyone who is experienced in double-entry bookkeeping. In general it follows the Uniform System of Accounts prescribed by the Federal Power Commission for the use of public and private power distributors. However, it is modified in some respects, so as to meet the needs of REA-financed cooperatives more specifically. Some of the changes arise from the manner in which REA borrowers are financed. Others are necessitated by the non-profit nature of the cooperative form of enterprise. Efficiency in record-keeping is the keynote throughout and, although simplicity has been sought wherever possible, it has not been made paramount to accounting requirements.[1]

REA borrowers other than non-profit cooperatives can use the accounting system outlined in this manual by changing the designation of six accounts.[2] The significant difference between REA borrowers and other power distributors is that REA borrowers obtain their capital funds through loans from the REA while the latter obtain them from the sale of securities. The rural electrification program was established on the assumption that the REA would provide loan funds for all capital needs of its borrowers, and the

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[1]Rural Electrification Administration, Uniform System of Accounts Prescribed for Electric Cooperatives Financed by the Rural Electrification Administration (Washington: looseleaf copy prepared by the Finance Division, REA, U. S. Department of Agriculture, January 1, 1947), p. i.

[2]Ibid., p. 147.

price charged for electric service by these borrowers is presumed to be set at the level that will provide sufficient funds for the retirement of the loans.

In the case of profit-making enterprises the funds for the retirement of capital equipment loans may be available from the net margin or profit from the sale of services. In the case of a non-profit cooperative such a net margin or profit cannot exist, or if it does exist it must be rebated to the members through patronage refunds.[3] This difficulty could be resolved by charging to operating expenses each year the amount of loans that were repaid, but this is forbidden by the rules of accounting. Capital costs cannot be recorded as an expense of operations in arriving at net income.

This problem is resolved by the use of an accounting technique, that of charging to current operations some proportion of past expenditures for plant and equipment. This charge is generally referred to as depreciation and is an estimate of the amount by which the fixed assets decrease in value through use. The REA cooperatives charge depreciation at a rate higher than is thought to be necessary for replacement purposes. The REA recommends that, when a cooperative prepares an estimate of the operating expenditures for a

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[3]It is not entirely correct to say that the net margin must be rebated, but a cooperative with a net margin that is not returned to the members in one form or another is open to the charge that it is not a non-profit enterprise.

proposed project, an allowance of one percent of the estimated physical plant cost be included for replacement purposes. The REA cooperatives actually charge to depreciation each year an amount equal to 3.48 percent of the physical plant cost.[4]

This enables the cooperatives to set their rates at the level necessary to provide sufficient revenues to cover operating expenses and loan payments without showing a large net margin or profit. A depreciation charge of 3.48 percent of the physical plant cost is slightly more than the proportion of the loan that is repaid annually. A loan that is amortized over a period of thirty years calls for repayment of 3.33 percent of the loan each year. Therefore a cooperative that has set its rates so as not to show a net margin will be receiving income from sales sufficient to meet the loan repayment plus only an amount equal to 0.15 percent of the value of the plant for replacement financing.[5]

There is another aspect of REA loans that should be taken up at this point. These loans are generally made for a period of thirty-five years, but they are amortized over a period of thirty years. The first five years of the loan

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[4]U. S. Department of Agriculture, Administrative Policies, REA (Washington: Government Printing Office, 1950), Administrative Bulletin No. 75, p. 5; and Administrative Bulletin No. 10, p. 1.

[5]The implications of this will be examined later in this study.

period requires no payment on interest or principal, but interest accumulates at the rate of two percent per annum. This accrued deferred interest is then amortized in equal quarterly payments over the remaining thirty years of the loan. During this interest deferment period the interest is regularly charged as an expense of operations, along with the current interest. This charge is a deduction from income and causes the net margin to be less than it otherwise would be, although it does not result in an actual current payment to the REA.

Since no principal payments are made during the deferment period, the amount of depreciation that is charged on physical plant put into operation before the loan covering its cost enters the repayment period is not matched by a current payment to the REA. The statement of operations does not show the amount that is paid to the REA for the retirement of the principal of the loans or the accrued deferred interest. The report of loan fund transactions shows the cumulative principal payments that have been paid and the amount of accrued deferred interest that has not yet been paid. The amount of accrued deferred interest shown on the report of loan fund transactions is thus an indication of the amount of interest that has been charged against income, but which has not yet required a matching payment to the REA.

The total amount of principal and accrued deferred

interest that has not been paid is the net obligation to the REA and is shown on the balance sheet as the total long term debt account. This account increases as loan funds are obtained from the REA and decreases with the retirement of principal and the payment of deferred interest. The primary balancing asset is the fixed asset section, which reflects the conversion of loan funds into plant and equipment.

The REA recommends that the rural electric cooperatives credit to their members the excess of operating revenues over all operating expenses properly chargeable against the furnishing of electric service. Such excess is said to be capital and is to be credited to each member's account annually on a patronage basis. These capital credits, however, are not to be retired until the cooperatives have fulfilled their obligations to extend and improve electric service and their ability to repay their loan obligations is reasonably assured.[6] A cooperative that has adopted this capital credits plan transfers annually some portion of the net operating margin account to the patronage capital credits account. Both of these accounts are on the balance sheet.

The nature of the cooperative enterprise and the way in which the REA cooperatives finance their capital expenditures necessitate a handling of the depreciation reserve

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[6] Ibid., Administrative Bulletin No. 12.

that is different from the way other types of business organizations handle this account. A profit-making enterprise does not normally set aside funds to finance replacement of plant and equipment, choosing instead to use them in the operations of the business where the rate of return is likely to be higher than if invested elsewhere. Replacements can be financed with any funds available at the time that replacement becomes necessary, perhaps even with borrowed funds. The REA will not make loans to finance the replacement of plant and equipment. In order to assure that funds are available for replacement purposes the REA recommends that the cooperatives actually set aside in a restricted fund an amount equal to 1.08 percent of the physical plant cost annually.[7]

The preceding discussion of the key points differentiating the accounting system used by the REA cooperatives and that used by profit-making enterprises outlines briefly the general pattern of rules and regulations within which the operations of the REA cooperatives are carried on. It should aid in defining and identifying the surplus possessed by the cooperatives, as well as pointing up the nature of such surplus.

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[7] Ibid., Administrative Bulletins No. 9 and 64.

Evidences of a Surplus

Working Capital

When a rural electric cooperative is organized there are no balances in the asset, liabilities or capital accounts. Balances appear in these accounts when loans are obtained from the REA, fees are collected from the members, and construction projects are completed and the cooperative begins to sell its services. Loan funds obtained from the REA are reflected in the fixed asset and long term debt accounts on the balance sheet. The collection of membership fees brings cash into the cooperative and they appear on the liabilities side of the balance sheet as a part of patrons' capital. Income from the sale of electric power goes to pay the expenses of operations, and any excess of income over expenses charged against operations results in increasing one or more of the asset accounts and is shown on the liabilities side of the balance sheet as net operating margin. Also, any excess of expenses charged against operations over the amount of expenses actually paid increases the asset accounts.

In the process of operations certain short term or current debts are incurred, in addition to the long term debt that arises as the result of borrowing from the REA. The working capital is defined as the excess of current assets over the current liabilities. The amount of working

capital possessed by a cooperative is one indication of an excess of income over payments. The amount of working capital possessed by the sixteen Oklahoma REA cooperatives has previously been shown in Table 9 of this study. The computation of the working capital for these cooperatives is shown in Table 15, along with the amount of principal payments made to the REA.

Method of Computation of Working Capital. The amount of working capital of the sixteen Oklahoma REA cooperatives is computed from data in Table 4, the combined balance sheet of these cooperatives. The current assets as shown in Table 15 include all the items that make up the total current and accrued assets in Table 4 with the exception of two accounts. The REA construction fund and the materials and supplies accounts are not considered as current assets in this study because both of these accounts are closely related to the fixed asset accounts. The construction fund account contains funds from the REA that are to be used exclusively in the construction of plant and equipment. The materials and supplies account contains primarily materials that are to be used in construction. These accounts cannot, therefore, be considered as current assets as accountants usually define them.

The current liabilities shown in Table 15 include all of the items that make up total current and accrued liabilities in Table 4 with the exception of accounts payable.

TABLE 15

WORKING CAPITAL AND PAYMENTS TO REA OF 16 OKLAHOMA REA COOPERATIVES, ANNUAL AND CUMULATIVE, SELECTED YEARS THROUGH 1952[a]
(Thousands of dollars)

	Account Items	Through 1947	1948	1949	1950	1951	1952	1948 to 1952	Through 1952	
	Current Assets[b]									
(1)	General Fund-Cash.....	$180.6	$ 52.5	$352.5	$329.0	$235.9	$-39.4	$ 930.5	$1,111.1	(1)
(2)	Investments.....	54.5	11.2	30.7	135.7	720.6	492.1	1,390.3	1,444.8	(2)
(3)	Notes Receivable.....	12.2	15.3	- 0.4	0.0	0.2	1.7	16.8	29.0	(3)
(4)	Accounts Receivable[c].....	549.2	81.3	-24.9	-50.2	- 7.6	103.2	101.8	651.0	(4)
(5)	Prepayments.....	44.1	8.4	13.5	2.9	24.8	14.4	64.0	108.1	(5)
(6)	Total Current Assets...	$840.6	$168.7	$371.4	$417.4	$973.9	$572.0	$2,503.4	$3,344.0	(6)
(7)	Less: Current Liabilities[d].	106.0	32.8	12.0	9.9	29.7	9.4	93.8	199.8	(7)
(8)	Working Capital.....	$734.6	$135.9	$359.4	$407.5	$944.2	$562.6	$2,409.6	$3,144.2	(8)
	Payments to REA									
(9)	Payments Applied Against Principal.....	$595.0	$308.0	$280.5	$518.3	$449.2	$446.7	$2,002.7	$2,597.7	(9)
(10)	Advance Payments (Cushion of Credit)..	241.6	59.6	31.7	- 9.1	242.9	274.7	599.8	841.4	(10)
(11)	Total Payments to REA...	$836.6	$367.6	$312.2	$509.2	$692.1	$721.4	$2,602.5	$3,439.1	(11)

[a]Source: Compiled from Tables 4, 7 and 8.

Note: Data refer to end of year, except that data for 1952 refer to September 30.

[b]Current assets refer to current assets other than materials and supplies and REA construction fund.

[c]Data presented in this table are net.

[d]Does not include accounts payable.

Accounts payable are not considered as current liabilities in this study because they are incurred primarily as the result of the purchase of materials and supplies to be used in the construction of plant and equipment. Since it is impossible to determine how much of the balance in this account is due to the purchase of items used in construction and how much to the purchase of items used for administrative purposes, less distortion results if the entire account is considered as arising in connection with construction projects.

The amount of working capital is the difference between the amount of current assets and the amount of current liabilities. In Table 15 working capital has been computed as of the end of 1947, the annual increase for 1948 through September 30, 1952, the total increase for 1948 through September 30, 1952, and as of September 30, 1952. The data shown for 1947 are the amounts in the respective accounts as of the end of the year, while the data for the individual years are the amounts of increase or decrease in the accounts during the year for which the working capital is computed. The data for 1948 through September 30, 1952, are the totals of the annual changes during the period, and the data through 1952 are the amounts in the respective accounts as of September 30, 1952.

The Amount and Composition of Working Capital. Working capital increased from $734,600 in 1947 to $3,144,200 on

September 30, 1952. The years since 1948 are shown to be the years of rapid increase in working capital, with the year 1951 showing the greatest increase. The increase in 1951 was $974,000, while the increase in 1952 was at an annual rate of $750,000. The increase in working capital is primarily a reflection of the increase in the general cash and investments accounts, the other accounts being too small to have any significant influence.

The general cash fund increased from $180,000 in 1947 to $1,111,100 as of September 30, 1952. As of this date the mean average amount in this account for each of the sixteen cooperatives was $69,000, with eight of the cooperatives having more than the average and eight having less than the average. The lowest amount in this account for any cooperative was a negative balance of $13,900, with the lowest positive balance being $5,000. The highest cash balance was $152,600.

The investments account increased from $54,500 in 1947 to $1,444,800 as of September 30, 1952. The general cash and investments accounts reflect almost 93 percent of the increase in current assets over the period. Of this increase 40 percent was accounted for by the cash account and 60 percent by the investments account.

Of the total in the investments account on September 30, 1952, two cooperatives had a balance of over $200,000, four of over $100,000, six of between $40,000 and $95,000,

two had less than $7,000, and two had no investments. The two cooperatives with the largest investments accounted for 34.7 percent of the total, and the six largest accounted for 74.3 percent of the total. The four cooperatives with the smallest amount of investments accounted for 0.6 percent of the total, and the middle six accounted for 25.1 percent of the total. The absence of a balance in the investments account or the existence of a small balance in this account may merely mean that the particular cooperative has chosen to put most or all of its excess cash into advance payments to the REA.

The preceding paragraphs can be summarized briefly. The flow of funds into the cooperatives has resulted in building up a total of $3,344,000 of current assets. These current assets are composed primarily of general cash and investments. The other current assets, notes receivable, accounts receivable, and prepayments, have also increased over the life of the cooperatives. Notes receivable and accounts receivable indicate the value of the services sold by the cooperatives for which no income has been received. If income had been received for these services the amount in the general cash and investments accounts would be greater. Prepayments are expenses that have been paid in advance. The total current assets are thus an indication of an excess of income over payments. Over the life of the cooperatives, current liabilities of $199,800 have been incurred; that is,

goods and services have been obtained but have not yet been paid for. The difference between the current assets and current liabilities, or $3,144,200, which is known as working capital, is the excess of value of services rendered over the value of goods and services bought.

It is not to be implied that working capital indicates the total amount of the excess, for it shows only the amount of the excess that has been used to build up the current assets. Business enterprises may use some of the excess to build up the fixed asset accounts. It is customary for profit making enterprises to use some of this excess in the expansion of plant and equipment. The REA generally provides the funds needed by the cooperatives for this purpose, but the cooperatives have also used some of their own funds for the construction of plant and equipment. In a following section the extent to which the cooperatives have financed construction out of their own funds will be examined. In the section immediately following another indication of an excess of income over payments will be examined, that of payments to the REA in advance of the due date.

Payments to the REA

The second part of Table 15 contains the data on the payments to the REA by the sixteen Oklahoma cooperatives. These data are taken from Table 7 and are reproduced in Table 15 without modification. These data are presented

here for the purpose of illustrating the existence of an additional excess of income over payments and further illustrating the bookkeeping system used by the cooperatives. In addition to payments of interest, the payments to the REA consist of two categories, payments applied against the principal of the loans as they come due and payments made on the principal in advance of the due date. It is the two latter types of payments with which this section is concerned.

Principal Payments. Through 1947 the sixteen Oklahoma cooperatives had paid $595,000 toward the retirement of principal due, and over the next five years made additional payments of over $2,000,000. Five cooperatives accounted for 71.7 percent of the total payments through 1947, and the lowest eight cooperatives accounted for 8.3 percent of total payments through 1947. Through September 30, 1952, total payments applied against principal amounted to $2,597,000, with the same five cooperatives accounting for 55.7 percent of the total. The eight cooperatives that accounted for 8.3 percent of total payments through 1947 accounted for 25.6 percent of total payments through September 30, 1952.

The payments made to the REA in advance of the due date that are used to retire loans in full are classified as payments applied against principal rather than as advance payments. This is one reason the payments in this category change in volume from year to year, with an especially large

increase between 1949 and 1950. In 1950 one cooperative used its advance payments to retire a loan in full, with the result that the amount applied against principal was higher than it otherwise would have been and the amount of advance payments was reduced to a negative figure. Another reason the amount of payments applied against principal changes from year to year is that additional loans are continually entering the repayment period. Also, during the early years covered by the data some loans that had been made with a twenty-five year maturity date were extended to thirty-five years. This was in accordance with the provisions of the Department of Agriculture Organic Act of 1944.

Advance Payments. Through 1947 payments made in advance of the due date amounted to $241,600 and increased by almost $600,000 over the next five years to reach a total of $841,400 as of September 30, 1952. Of the total advance payments made through 1947 the five cooperatives that accounted for 71.7 percent of payments applied against principal through 1947 accounted for only 33.2 percent. The eight cooperatives that accounted for 8.3 percent of total payments applied against principal through 1947 accounted for 10.3 percent of advance payments through 1947. The remaining three cooperatives accounted for 56.5 percent of total advance payments through 1947. These three cooperatives accounted for 20.0 percent of the payments applied against principal through 1947.

Of the total advance payments through September 30, 1952, the five cooperatives that accounted for 33.2 percent of advance payments through 1947 accounted for 38.6 percent, and the eight cooperatives that accounted for 10.3 percent of advance payments through 1947 accounted for 39.4 percent. The three remaining cooperatives that accounted for 56.5 percent of advance payments through 1947 accounted for 21.9 percent of advance payments through September 30, 1952.

The two cooperatives noted earlier as having no investments do not have any advance payments, and of the two noted as having investments of less than $7,000 one had advance payments in 1952 of over $125,000 and the other had no advance payments. There is no distinct pattern shown for the other cooperatives with respect to the amount of investments and advance payments.

The preceding discussion of investments and advance payments shows something of the over-all plan upon which the REA systems have been based. The plan is that during the early years of a loan the cooperatives do not have to make payments to the REA. It is during this period that the loan funds are used in the construction of plant and equipment, and when the completed project is put into operation the revenues coming in are at first small. During this deferment period the cooperatives build up their working capital in preparation for meeting the payments that will start coming due in a few years. Until such payments coming due

reach the point where they are too large to be met out of current revenues, a part of the revenues is put into advance payments and investments.

From the end of 1947 through September 30, 1952, the records of the individual cooperatives reveal five instances where the amount of advance payments decreased during a year. This could be taken to mean that during this period the cooperatives found it necessary to draw on their advance payments only five times, but since the data are for the ends of years the number of times that advance payments were drawn upon during the year is not revealed. Payments are made to the REA quarterly. The total amount by which the advance payments were reduced, as shown by the year-end data, from the end of 1947 through September 30, 1952, was $124,200. One cooperative accounted for $118,100 of the total, and the use was for the retirement of a loan in full before its due date. The use to which the remainder was put cannot be determined from the data.

Summary. The increase in working capital, held mainly in the form of cash and investments, is one indication of the extent to which the flow of funds into the cooperatives had exceeded the amount of funds necessary to meet the current payments. On September 30, 1952, the working capital of the sixteen Oklahoma cooperatives amounted to $3,144,200. The amount of advance payments made to the REA was $841,400 on September 30, 1952. Advance payments are

another indication of funds flowing into the cooperatives in excess of the current required payments. The total of working capital and advance payments was $3,985,600.

The total of the payments applied against principal ($2,597,700) and advance payments made to the REA ($841,400) is $3,439,100. Since neither of these payments appears on the operating statement as an expense, and since the net margins amount to only $24,000, the existence of these large payments illustrates one of the technicalities of the bookkeeping system used by the cooperatives. Included in the expenses charged against operating income are some items that do not require a current payment. The total of working capital and advance payments, or $3,985,600 is indicated thus far to be the amount by which the flow of funds into the cooperatives has exceeded required payments. It is necessary, however, to examine one other area of the operations of the cooperatives before the full amount of this excess is known. This area is examined in the following section.

Estimate of General Funds Invested in Plant

The cooperatives depend almost entirely upon loans from the REA for the funds used in the construction of their distribution systems, including the necessary buildings. In the rush to serve additional customers many cooperatives have financed the building of some lines with funds from the

general cash account, with the intention of reimbursing the general cash fund from loan funds coming in later. In many instances by the time loan funds were made available there was additional need to serve urgent customers, with the result that the general fund was not reimbursed for the amounts expended. The attitude of the REA toward this practice is indicated in the following quote:

> It is the responsibility of the borrowers to determine the proper use and expenditure of their general funds. The Rural Electrification Administration, in representing the interest of the Government as mortgagee, and in furtherance of the objectives of the Rural Electrification Act of 1936, as amended, is properly concerned that expenditures of general funds, or other expenditures for additions and extensions to the borrower's system shall not impair the Government's security or the accomplishment of the objectives of the REA Act. To the extent that the provisions of the loan and security documents require the Administrator's approval for the construction and acquisition of extensions or additions to a borrower's system, approval is hereby given for the use of general funds for such extension or additions subject to the following conditions: . . . .[8]

There then follows a listing of the conditions with which a cooperative must comply, oriented around the theme of assuring the REA that the ability of the borrower to meet future payments to the government will not be impaired by such use of general funds. Included in this policy statement is the provision that loans may be obtained from the REA for the purpose of reimbursing the general fund for

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[8]U. S. Department of Agriculture, Administrative Policies, REA (Washington: Government Printing Office, 1950), Administrative Bulletin No. 6-R1.

such expenditures.[9]

An estimate of the amount of general funds invested in fixed plant by the sixteen Oklahoma cooperatives is shown in Table 16. The procedure used was outlined by an official auditor of the REA and was recommended to all of the cooperatives in Oklahoma for use in obtaining an indication of how much of the general cash fund had been invested in fixed plant over the life of the cooperatives. This would indicate to the cooperatives whether or not it would be worth while to collect the necessary data to submit to the REA as the basis for a loan for reimbursement purposes.

The data used in the computation are contained in Tables 4 and 7 of this study and have been reproduced in Table 16 without appreciable modification. The items in Table 16 correspond in title and amount with items in Tables 4 and 7 with the exception of one item. Item (3) of Table 16, Deferred Debits, is item (20) of Table 4, Total Other Debits, but the amount is the same in both tables. All other items appearing in Table 16 have an exact counterpart in either Table 4 or Table 7.

The procedure used is in two parts. First, it is necessary to compute the total amount invested in fixed plant from all sources except that part of fixed assets that resulted from contributions. This total is found by

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[9] Ibid.

TABLE 16

ESTIMATE OF GENERAL FUNDS INVESTED IN PLANT BY 16 OKLAHOMA COOPERATIVES, ANNUAL AND CUMULATIVE, FOR SELECTED YEARS THROUGH 1952[a]
(Thousands of dollars)

Account Items[b]	Through 1947	1948	1949	1950	1951	1952	1948 to 1952	Through 1952	
(1) Utility Plant Total.....	$15,710.5	$7,133.3	$8,194.4	$9,179.5	$5,781.0	$3,832.2	$34,120.4	$49,830.9	(1)
Plus:									
(2) Materials and Supplies.....	2,027.6	295.8	- 73.1	-980.2	614.1	-373.9	-517.3	1,510.3	(2)
(3) Deferred Debits.....	393.1	85.2	8.3	-233.6	-95.6	- 48.9	-284.6	108.5	(3)
(4) Total.....	$18,131.2	$7,514.3	$8,129.6	$7,965.7	$6,299.5	$3,409.4	$33,318.5	$51,449.7	(4)
Subtract:									
(5) Accounts Payable.....	$ -458.6	$ -374.5	$ 259.2	$ -911.5	$1,089.8	$ 97.4	$ 160.4	$ -298.2	(5)
(6) Contributions in Aid of Construction.....	- 38.8	- 19.3	- 14.1	- 31.0	-22.8	- 35.3	-122.5	-161.3	(6)
(7) Other Deferred Credits.....	- 25.3	- 9.7	- 57.3	- 16.2	-21.3	22.9	- 81.6	-106.9	(7)
(8) Total to be Subtracted[c]....	$ -522.7	$ -403.5	$ 187.8	$ -958.7	$1,045.7	$ 85.0	$ - 43.7	$ -566.4	(8)
(9) Total Funds Invested in Plant (4 minus 8).....	$17,608.5	$7,110.8	$8,317.4	$7,007.0	$7,345.2	$3,494.4	$33,274.8	$50,883.3	(9)
(10) Advances from REA.....	$17,389.2	$6,392.9	$8,018.9	$6,725.0	$6,110.7	$2,926.0	$30,173.5	$47,562.7	(10)
(11) Obligations Assumed and Transferred (Net).....	10.9	- 2.8	- 3.8	- 2.9	932.2	- -	922.7	933.6	(11)
(12) Total.....	$17,400.1	$6,390.1	$8,015.1	$6,722.1	$7,042.9	$2,926.0	$31,096.2	$48,496.3	(12)
(13) Less: REA Construction Fund[d].....	$ -617.4	$ -153.0	$ -324.7	$ -320.2	$ 301.5	$ 352.7	$ -143.7	$ -761.1	(13)
(14) Construction Funds Invested in Plant.....	$16,782.7	$6,237.1	$7,690.4	$6,401.9	$7,344.4	$3,278.7	$30,952.5	$47,735.2	(14)
(15) GENERAL FUNDS INVESTED IN PLANT (9 minus 14)..	$ 825.8	$ 873.7	$ 627.0	$ 605.1	$ 0.8	$ 215.7	$ 2,322.3	$ 3,148.1	(15)

[a] Source: Compiled from Tables 4 and 7 of this study.

[b] Data refer to end of year, except that data for 1952 refer to September 30.

[c] A positive figure in this line must be added to line 4.

[d] A positive figure in this line must be added to line 12.

adding the utility plant total as shown on the balance sheet to the materials and supplies account and the deferred debits account. These two items are added to the utility plant total because these accounts contain mainly balances that apply to construction projects or to materials that are to be used on such projects. From this total are subtracted those accounts that contain credit balances relating to the construction projects. These include accounts payable, contributions in aid of construction, and other deferred credits.

The second part of the procedure requires computing the amount of REA funds that have been invested in fixed assets. This total is found by adding the REA advances and the obligations assumed and transferred, and then subtracting from this total the amount that is left in the REA construction fund. The difference between the total amount invested in fixed plant and the amount of REA construction funds invested in fixed plant is the amount of general funds invested in fixed plant.

Table 16 shows the amount invested in fixed plant and materials cumulative through 1947, annually for 1948 through 1952 and cumulative through 1952. The total amount so invested by the sixteen Oklahoma cooperatives over their entire life is $3,148,100, approximately one-half of which is in the form of materials and supplies. The approximately $1,500,000 that is invested in constructed plant has gone to

increase the size of the distribution systems. The materials and supplies will be used as additional projects are completed.

Summary

The computation of the working capital of the sixteen Oklahoma cooperatives showed this item to be $3,144,200 as of September 30, 1952. The advance payments made to the REA were shown to be $841,400 on the above date, and the amount of general funds invested in fixed plant and materials was estimated to be $3,148,100. The total of these items is $7,133,700 which is the amount by which the flow of funds into the cooperatives has exceeded the required payments. This is the amount of surplus funds that the sixteen Oklahoma cooperatives accumulated over the entire period of their operation through September 30, 1952.

In the foregoing computations the amount of funds obtained from the REA was not considered as an inflow of funds affecting the surplus accumulated by the cooperatives. These funds are restricted to use for construction purposes, and for this reason had to be taken into consideration when computing the amount of general funds invested in fixed assets. The surplus indicated above has accumulated from funds flowing into the cooperatives from the sale of power and other operations of the cooperatives.

CHAPTER VI

SOURCES AND USES OF FUNDS

Introduction

In Chapter IV the surplus funds accumulated by the cooperatives were identified, and it was pointed out that the cooperatives show a very small net margin on their operating statements. The question arises: What sources build up the surplus funds? In Chapter II use was made of the application of funds statement (Table 8) for the purpose of showing the growth of working capital of the sixteen Oklahoma cooperatives. In that table each of the balance sheet items was classified as either a source or use of funds. In the present chapter use is made of a modified form of that statement for the purpose of pointing out the sources of the surplus funds.

For the purpose of financial analysis the operations of the REA cooperatives can be divided into two distinct areas. One of these areas relates to the funds borrowed from the REA for use in the construction of the distribution systems. The other area relates to the purchase of electric power and its resale to the members of cooperatives. The

division of the operations into these two areas is possible because the funds obtained from the REA are restricted to use in the construction of the physical plant. Consequently, these funds are not part of the surplus funds built up by cooperatives, for such REA funds will either be used to construct physical plant or they will be returned to REA. The surplus funds must derive from the other area of operations, the purchase and sale of electric power.

The Sources and Uses of Funds

In accordance with the division of operations made above, the funds flowing into the cooperatives can be thought of as coming from two major sources. REA is the source of a large inflow in the form of funds advanced for construction purposes, amounting to over $47,000,000 as of September 30, 1952. The other sources of funds flowing into the cooperatives are their operations in making electric power available to members. It is therefore possible to present only the sources and uses of funds that relate to the purchase and sale of electric power by cooperatives. The tabular form of this presentation is derived from the application of funds statement by excluding those sources and uses related to funds borrowed from the REA, and including the data showing the amount of general cash funds invested in plysical plant. This modified form of the application of funds statement is presented as Table 17.

TABLE 17

SOURCES AND USES OF FUNDS FROM THE OPERATIONS OF 16 OKLAHOMA REA COOPERATIVES, ANNUAL AND CUMULATIVE, SELECTED YEARS THROUGH 1952[a]
(Thousands of dollars)

	Account Items[b]	Through 1947	1948	1949	1950	1951	1952	1948 to 1952	Through 1952	
	Sources of Funds									
(1)	Patrons' Capital (✓).....	$ 257.6	$ 40.2	$ 40.2	$ 53.6	$ 47.8	$ 46.4	$ 228.2	$ 485.8	(1)
(2)	Reserve for Depreciation (✓).	1,542.9	1,075.3	936.7	1,160.3	1,105.4	1,011.1	5,288.8	6,831.7	(2)
(3)	Deferred Interest (✓).....	261.1	187.6	306.5	453.9	523.5	394.2	1,865.7	2,126.8	(3)
(4)	Reserve for Acquisition Adjustment (✓).....	- -	- -	20.3	43.2	70.5	13.5	147.5	147.5	(4)
(5)	Margins and Equities (✓).....	335.4	74.1	- -	- -	- -	34.5	- -	139.6	(5)
(6)	Current Liabilities Other than Accounts Payable (✓)...	106.0	32.8	12.0	9.9	29.7	9.4	93.8	199.8	(6)
(7)	TOTAL SOURCES.....	$2,503.0	$1,410.0	$1,315.7	$1,720.9	$1,776.9	$1,509.1	$7,624.0	$9,931.2	(7)
	Uses of Funds									
(8)	Current Assets Other than Materials and Supplies and REA Const. Fund (✓)....	$ 840.6	$ 168.7	$ 371.4	$ 417.4	$ 973.9	$ 572.0	$2,503.4	$3,344.0	(8)
(9)	Margins and Equities (-).....	- -	- -	5.1	189.2	110.1	- -	195.8	- -	(9)
(10)	Payments to REA (✓).....	836.6	367.6	312.2	509.2	692.1	721.4	2,602.5	3,439.1	(10)
(11)	General Funds Invested in Plant (✓).....	825.8	873.7	627.0	605.1	0.8	215.7	2,322.3	3,148.1	(11)
(12)	TOTAL USES.....	$2,503.0	$1,410.0	$1,315.7	$1,720.9	$1,776.9	$1,509.1	$7,624.0	$9,931.2	(12)

[a]Source: Compiled from Tables 7, 10, and 11.

[b]Data refer to end of year, except that data for 1952 refer to September 30.

The Sources of Funds

The sources of funds that are related to the purchase and sale of electric power are presented as Items (1) through (6). These are the asset accounts, other than fixed assets, that indicate an inflow of funds or a charge made to operations that does not require a current payment or outflow of funds.

Patrons' Capital. Patrons' capital flows into the cooperative in two ways, and is shown on the balance sheet as membership fees and patronage capital credits. A membership fee is charged for the privilege of joining a cooperative, the normal fee being five dollars or more. This fee is returned when the member withdraws from the cooperative, but in the meantime it is available for use by the organization. Patronage capital credits arise in connection with the sale of electricity by the cooperatives. These are credits to the individual accounts of the members of the portion of the operating margin that it has been determined to rebate to the members at some future date. When a cooperative decides to allocate a portion of the margins to the members it results in transferring an amount from the operating margin account to the patronage capital credits account. The inflow of funds that have been recorded in the patrons' capital account amounted to $257,600 in 1947 and increased to $485,800 on September 30, 1952.

Reserve for Depreciation. The depreciation reserve

on the balance sheet is the net amount of credit entries made at the time that operations are charged with the depreciation expense. It is desirable when using operating data of this type to use the depreciation expense account rather than the reserve account, and then obtain the necessary details from the subsidiary records of the business to explain any difference in the annual depreciation expense charged and the amount by which the depreciation reserve changed during the period. The nature of the available data is such that these details cannot be shown. Consequently, it has been necessary to take the depreciation reserve account as embodying or reflecting all charges to depreciation expense, and all debits to the reserve as the result of the retirement of fixed assets from service.

Reference to the balance sheets and operating statements of these cooperatives (Tables 4 and 5) reveals that the depreciation reserve on the balance sheet increases each year by an amount greater than the amount charged as depreciation expense on the operating statement. If the depreciation reserve was smaller than the total charged to depreciation expense, this could be accounted for on the grounds that the depreciation reserve was reduced by debiting it with the amount by which retired property was depreciated during its useful life. The amount by which the reserve has been reduced by such debits is not shown in the data, but this is not an important defect because the credit

entries made at the same time to the fixed asset accounts eliminate the possibility of distortion from this source.

The existence of a reserve much larger than the depreciation expense requires an explanation. Personnel of several of the cooperatives were interviewed on this point, and essentially the same explanation was obtained in each case. One reason for this difference is that in December, 1944, the REA issued instructions that the depreciation rate should be increased from the original rate of three percent annually on the distribution system to 3.48 percent annually. In the years following these instructions the new rate has been currently charged, and the new rate has also been applied retroactively. This required a sizable adjustment of the reserve, with a corresponding debit to the accumulated margins account.

A second reason for the necessity for an adjustment of the reserve has been the slowness with which the individual cooperatives have transferred property to the final account and begun depreciation. In many instances a construction project would be completed and put into service, but the necessary property accounts would not be debited for this until some later date. In the meantime the property was being used but no depreciation expense was being charged on it. REA auditors have made it a practice to correct this with a credit to the depreciation reserve of the amount of depreciation that should have been charged as expense over

the period, and a corresponding debit to the cumulated margin account has been made at the same time.

The above explanation of the difference in the reserve and the depreciation expense charged was substantiated by a letter from REA in response to a request for information on the problem. Two paragraphs of the letter are quoted below.

> 1. If an electric cooperative applied any different rate of depreciation in the past from that which is uniform now, its accounts should be and probably have been adjusted to apply the present rate to accounts for earlier years.
>
> 2. Slowness in transferring completed construction to the proper account has required in some cases a substantial adjustment of the sort you describe. We have never attempted to catalogue the frequency or relative size of such required adjustments and therefore have no information about how prevalent they are. Since 1948, REA has urged borrowers to depreciate plant in service whether or not it has been transferred to the final account.[1]

There is a third practice on the part of the cooperatives that results in increasing the reserve without a corresponding increase in the depreciation expense. In the process of constructing distribution facilities there is use of such items as trucks and other heavy equipment. The use of this equipment enters into the cost of the project, and the amount of this charge is determined by the depreciation rate. The use of such equipment is charged to the construction project and the corresponding credit is to the

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[1]U. S. Department of Agriculture, REA, letter dated May 7, 1953.

depreciation reserve, with no entry being recorded in the depreciation expense account. This practice results in a sizable difference between the reserve and the expense account because transportation equipment is depreciated at a relatively high rate.[2]

The first two factors discussed above in connection with the reserve account not only explain largely the difference in the reserve and the expense account, but also go a long way toward explaining the inability to follow through from year to year with the cumulated margin account on the balance sheet (Table 4). The cumulated margin for one year cannot be obtained by getting the total of the cumulated margin for the previous year and the operating margin for the current year. The adjustments discussed above resulted in reducing the cumulated margin account. There are many other adjustments that result in changing the cumulated margin account, but these do not affect the depreciation account and have no bearing on the problem at hand.

A fourth reason why the depreciation reserve account increases by more than the amount charged as depreciation expense is related to the purchase of operating facilities from other organizations. In the earlier discussion of the Electric Plant Acquisition Adjustment account, it was indicated that the depreciation reserve of the cooperative

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[2]This information was supplied by an official auditor of the Rural Electrification Administration.

making the purchase is credited with the amount of depreciation the previous owner had charged as depreciation expense. The concurrent debit is to the Electric Plant Purchased account, rather than to the depreciation expense account. The result of this procedure is to increase the depreciation reserve account while there is no concurrent increase in the amount of depreciation expense charged.

With these facts in mind it appears that the depreciation reserve can legitimately be used as a source of funds in place of the depreciation expense that is charged against operations annually. For purposes of clarity it should perhaps be noted that in the absence of such adjustments as were described above, the margins account would be larger and would account for a larger proportion of total sources of funds than is shown in Table 17. The total of all sources of funds is unchanged, only the proportions of the total accounted for by the respective accounts are changed.

The funds recorded in the depreciation reserve account flowed into the cooperatives from the sale of electricity. In arriving at the operating margin a depreciation expense was charged against the operating revenues even though no current payment was required to be made. This resulted in reducing the operating margin and building up the depreciation reserve. Since no payment or outflow of funds resulted from this action, an amount of funds equal

to the depreciation reserve was available for use by the cooperatives.

Deferred Interest. Deferred interest is interest that accumulates on loan funds advanced to a cooperative by the REA during the first five years of the loan. No interest or principal payments are made during this period, but the interest is charged as an expense of operations. This deferred interest is recorded on the record of loan fund transactions (Table 7), and the amount recorded therein is reduced as quarterly deferred interest payments are made to the REA. The amount recorded in Table 7 is a net figure; that is, it is the amount that has been charged as an expense of operations but has not yet required a payment or outflow of funds. It is the same type of accounting transaction as the depreciation charge. The amount of deferred interest not yet paid is an indication of funds available for other uses by the cooperatives until such time as it has to be paid. The deferred interest amounted to $261,100 in 1947, and increased to $2,126,800 on September 30, 1952.

Reserve for Acquisition Adjustment. This item results from the amortization of the amount by which the purchase price of acquired property exceeds the original cost of the property less the estimated depreciation to the date of purchase. This account is similar to the depreciation reserve account, and is the result of a charge against operations that does not require a current payment or outflow of

funds. The effect of this charge is to reduce the operating margin below what it otherwise would be. The amount recorded in this account is available for use in the operations of the cooperatives. This account did not have a balance until 1949 when it amounted to $20,300, but amounted to $147,500 on September 30, 1952.

Margins and Equities. This account is composed of several accounts that appear on the balance sheet. These are the other capital account, the operating margins accounts, and the non-operating margins account. The other capital account increased from $28,600 in 1947 to $82,600 on September 30, 1952; the operating margin for 1952 was $33,000; the cumulative margin account for prior years was a negative $145,000 on September 30, 1952; and the cumulative non-operating margin account was $169,000 on the above date. The sum of these, or $139,600, is shown in Table 17, which is the net inflow of funds to the cooperatives from these sources. In some years the margins and equities account appears in Table 17 as a use of funds. This indicates a reduction in the amount recorded in them at the end of the previous year.

Current Liabilities Other Than Accounts Payable. This is the final source of funds shown in Table 17, and is made up of consumers' deposits and accrued liabilities. Accounts payable have been excluded because they relate primarily to the fixed asset accounts, as explained

previously. Consumers' deposits consist of deposits for meters and other such items, and accrued liabilities consist of such items as accrued taxes, insurance, wages, and salaries. Consumers' deposits are an inflow of cash or its equivalent, while accrued liabilities are an inflow of services for which payment will be made in future. This account contained $106,000 in 1947 and increased to $199,800 on September 30, 1952.

The Uses of Funds

The uses of funds are presented in Table 17 as items (8) through (11). These comprise the total uses of funds derived from the purchase and sale of electricity by cooperatives.

Current Assets Other Than Materials and Supplies and REA Construction Fund. A part of the funds flowing into cooperatives goes to build up the current asset accounts. The materials and supplies account and the REA construction fund account are excluded from consideration as current assets for the reason that, as was explained previously, they are related to the fixed asset accounts. At the end of 1947 these current assets amounted to $840,600, and increased to $3,344,000 on September 30, 1952. Included in this category are investments, general cash, accounts and notes receivable, and prepayments. Each of these items appears as a separate account on the balance sheet (Table 4).

Payments to the REA. These payments include those for the retirement of loan principal as it comes due and payments made to the REA in advance of the due date. Such payments do not appear on the operating statement (Table 5) as an expense of operations, but nevertheless result in a payment or outflow of funds. Funds for these payments are available even though the cooperatives show very little operating margin. The operating margin is reduced by charging to operations items of expense that do not require a current payment, and then payments are made to the REA that do not show up on the operating statement as an expense. The total of payments to the REA was $826,000 at the end of 1947, and increased to $3,439,000 on September 30, 1952.

General Funds Invested in Plant. The amount of general funds invested in fixed plant was shown in Table 16. Through 1947 the sixteen Oklahoma cooperatives had invested a total of $825,800 of the general cash fund in fixed plant, and by September 30, 1952 this had increased to $3,148,100. Since the materials and supplies account contains balances that are primarily for use on construction projects the investment in materials and supplies is included in the total of general cash invested in fixed plant.

Relation to Surplus Funds

Table 17 reveals the sources of the surplus funds accumulated by the sixteen Oklahoma cooperatives. The sur-

plus was identified in Chapter IV as working capital, advance payments to the REA, and general cash funds invested in fixed plant. These three items can be identified in Table 17. Working capital is current assets other than materials and supplies and REA construction fund (item 8), minus current liabilities other than accounts payable (item 6). This figure, as indicated earlier, is $3,144,200.

The amount of advance payments to the REA is obtained by subtracting from payments to the REA (item 10), those payments that were made when due. These are shown in Table 7 to be $2,597,700. The remainder, $841,400, is a further use of the surplus funds. General funds invested in fixed plant (item 11 of Table 17), amounting to $3,148,100, is the third use of the surplus funds. The total of these three items, $7,133,700, is the amount identified earlier to be the total accumulation of surplus funds by the cooperatives.

The total sources and uses of funds shown in Table 17 was $9,931,200 on September 30, 1952. All of the items listed as sources and uses of funds are classifications used by accountants. Obviously, the source of all funds from the operations of cooperatives shown in Table 17 is the sale of services by the cooperatives. The total amount of funds accruing to the cooperatives from the sale of services is not shown, only the amount that was not used to pay operating expenses. Included, however, is the amount that was used to

retire loan principal. Also included is the amount of current liabilities. The amount of the surplus, as defined in Chapter V, can be determined by subtracting principal payments and current liabilities from the total sources. The result of this subtraction is $7,133,700, previously indicated to be the amount of the surplus.

The surplus is held in the form of working capital, advance payments to the REA, and general funds invested in fixed assets. It is not possible to allocate the surplus among the various sources of funds in any meaningful way. It may be worthwhile, however, to express the various sources and uses of funds as percents of the total sources and uses.

Individual Sources and Uses as Percent of the Total

The major sources and uses of total funds are immediately apparent in Table 18. The two major sources of funds are the reserve for depreciation and deferred interest, these two accounts making up approximately ninety percent of total sources. The increasing proportion accounted for by the deferred interest account over the period should be noted, along with the decreasing proportion accounted for by patrons' capital and margins and equities. This is significant in that it indicates an increase in the amount of interest charged to expense, but which has not yet been paid. As the deferment period on the various notes expires and the

TABLE 18

INDIVIDUAL SOURCES AND USES OF FUNDS FROM OPERATIONS AS PERCENTS OF TOTAL SOURCES AND USES OF THESE FUNDS, 16 OKLAHOMA REA COOPERATIVES, ANNUAL AND CUMULATIVE, SELECTED YEARS THROUGH 1952[a]

	Account Items[b]	Through 1947	1948	1949	1950	1951	1952	1948 to 1952	Through 1952
	Sources of Funds								
(1)	Patrons' Capital	10.29	2.85	3.06	3.11	2.69	3.07	2.99	4.89
(2)	Reserve for Depreciation	61.64	76.26	71.19	67.42	62.21	67.00	69.37	68.79
(3)	Reserve for Acquisition Adjustment	0.00	0.00	1.54	2.51	3.97	0.89	1.93	1.49
(4)	Deferred Interest	10.43	13.30	23.30	26.38	29.46	26.12	24.47	21.42
(5)	Margins and Equities	13.40	5.26	0.00	0.00	0.00	2.29	0.00	1.41
(6)	Current Liabilities Other than Accounts Payable	4.23	2.33	0.91	0.58	1.67	0.62	1.23	2.01
(7)	TOTAL[c]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	Uses of Funds								
(8)	Current Assets Other than Materials and Supplies and REA Const. Fund	33.58	11.96	28.23	24.25	54.81	37.90	32.84	33.67
(9)	Margins and Equities	- -	- -	0.39	10.99	6.20	- -	2.57	- -
(10)	Payments to REA	33.42	26.07	23.73	29.59	38.95	47.80	34.14	34.63
(11)	General Funds Invested in Plant	32.99	61.96	47.66	35.16	0.04	14.29	30.46	31.70
(12)	TOTAL[c]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

[a]Source: Compiled from Table 17 of this study.

[b]Data refer to end of year, except that data for 1952 refer to September 30.

[c]Individual items may not total to 100.00 due to rounding.

amortization period begins, the amount of interest actually paid to the REA will increase.

The uses of these funds were rather equally divided among three items on September 30, 1952. Current assets, other than those related to the fixed asset accounts, payments to REA, and the investment of general funds in fixed assets, each account for about one-third of the total uses of funds. In some years margins and equities appear as a use of funds, which indicates that the amount in this account decreased from the previous year.

The exact reasons for the year to year fluctuations in the proportion of the total uses of funds accounted for by the individual items are not revealed by our data. However, some of the factors affecting these proportions are implied from the nature of the operations of the cooperatives. Some of the factors that would influence the amount of general funds that would be invested in fixed assets and materials are: the amount and urgency of the construction going on, the speed with which REA is able to advance funds to the cooperatives, the extent to which necessary materials and supplies are available from manufacturers, and the respective proportions of total construction performed by cooperative personnel and by outside contractors.

The year 1951, in which general funds invested in plant were practically nonexistent, shows a large increase in the proportion accounted for by current assets. A glance

at the balance sheet of the cooperatives, Table 4, shows that investments increased by over $700,000 in that year; and Table 7 shows that advance payments on principal amounted to over $200,000 for 1951. Total investments to the end of 1950 were only $232,000, and advance payments were only $324,000 at the end of 1950. The year 1951 seems to have been a year in which the cooperatives found themselves in possession of a large surplus of cash, surplus in the sense that it was not needed in continuing the operations of the cooperatives at the desired speed and magnitude.

It is interesting to note that these funds, ninety percent of which come from charging to operations two items that do not require an immediate cash payment, provide the working capital for the cooperatives, provide the payments to REA, and allow the cooperatives to finance some of their construction projects. Two-thirds of these funds are provided from the depreciation charge alone.

The above is somewhat revealing of the nature of the depreciation charge. Both the depreciation charge and the recording of deferred interest serve similar purposes in that both cause the expenses of operations to be more than has to be paid out immediately, and thus result in providing an excess of receipts that build up the working capital position. This is on the assumption that in the absence of these charges the schedule of rates charged consumers of electric power would be reduced, for if this were not done,

the cooperatives would show too large an operating margin to warrant their classification as nonprofit organizations. In the case of the deferred interest charge it is apparent that this is the recording of a charge that is to call for payment outside the cooperative at some future date. This is a definite expense that has been computed on the basis of the two percent annual interest rate applied to the receipt of funds advanced by the REA during the five year deferment period, and there is no way to escape its payment. It is actually a part of the total operating expenses incurred by the cooperative in the act of providing electric service to its customers. In the case of the depreciation charge the logic is not quite so clear and direct. It seems desirable to examine more closely the nature of the depreciation charge.

Historical Uses of the Depreciation Charge

The evolution of the depreciation concept has been long and fraught with much controversy. It is not possible to give this topic a detailed presentation, but it does seem possible to indicate the major steps in its development. It is hoped that this slight digression will be helpful in evaluating the broad plan upon which the REA cooperatives have been developed, and that it might throw some light in such a direction that any weaknesses of the plan might be exposed.

Early Use of the Depreciation Charge. The development of accounting into its present complexity has come about largely over the past two centuries, thus paralleling the evolution of business organization and the economy in general from the simpler to the more complex. The industrial revolution influenced the development of accounting in the same way that it influenced the development of the techniques of business organization and the productive mechanism of the economy in general. That is, it influenced the growth of accounting techniques by requiring a more detailed accounting for the transactions that went on in an industrialized plant. The growth of accounting techniques was in response to a need created by the innovations in machine technology that were at the time creating the need for business organizations that could operate the new machines in a somewhat efficient manner.

Littleton, in his Accounting Evolution to 1900, reproduces accounts taken from text books for as early as 1588 showing use of a charge equivalent to the modern depreciation charge. The examples used pertain to the livestock and household goods account. Horses, for example, are decreased in value over a year by about twelve percent because of use, and the profit and loss ledger is credited with a small charge said to be due to loss by decay of household goods.[3]

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[3]A. C. Littleton, Accounting Evolution to 1900 (New York: American Institute Publishing Co., 1933), pp.

Littleton uses John Mair's Bookkeeping Methodis'd (5th ed. 1757), as representative of indicating the way in which fixed assets were handled during the eighteenth century. The indications are that fixed assets were to be treated much like a merchandise account, in which the inventory amount was carried forward and the remainder was transferred to loss-and-gain. It is not clear whether the amount carried forward was valued at the original cost or the then present value, or whether any cognizance was taken of the decrease in value because of wear and tear. "Depreciation apparently was not regarded as expense or cost but as loss, as 'decay from use'. The depreciation of a ship was therefore no different in principle from the loss of a ship in a storm."[4] It appears that it was the railroads that first began to think of depreciation as a part of the cost of production, placing the beginning of this cost concept at about the middle of the nineteenth century.

The Influence of Railroads. The primary influence of railroad corporations on the use of the depreciation charge was bringing to the attention of accountants and directors the large amount of expenditures that was required to keep the tracks and rolling stock in good operating con-

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223-224. Cited by Littleton from Stephen Monteage, Instructions for Rent-gatherer's Accompts, bound with the author's Debtor and Creditor Made Easie (London: 1683).

[4]Ibid., pp. 224-227.

dition. Perhaps two factors, the size of the corporation and the nature of the equipment used, brought about the great amount of discussion of the problem of depreciation that is found in the railroad literature of the middle nineteenth century.

Coupled with this was the growing realization that the corporate form of business organization was in some respects different from the joint stock companies that had provided for the financing of large business undertakings in the trading field earlier. Whereas the joint stock company was in many instances a temporary sort of organization, set up for the purpose of financing one trading venture and then being dissolved once this purpose had been accomplished, the corporation was a more or less permanent business organization for the purpose of exploiting a continuing market. This difference brought attention to the fact that the equity of the stockholders might be decreased over a period of time by the depreciation through wear and tear of the equipment. Thus, it came to be to the best interest of the stockholders that the assets of the corporation be kept intact through some device that would prevent the payment of dividends out of the original investment.

Another factor that brought the attention of the railroads to the fact of depreciation was their regulation by states and the national government. The fixing of rates for railroads immediately brought up the question of net

income of the corporation. If the income of the railroads was to be limited by the imposition of governmentally established rates, the question as to what net income was had to be settled. Did expenses of operations include the wear and tear on the plant and equipment? These were problems facing the regulatory commissions and the accountants of railroad corporations. In the case of the former it was supposed that their duty was to protect the consumers from exorbitant freight rates, and in the case of the latter their duty became that of protecting the stockholders from rates that were too low.

That this is something of the nature of the forces operating in relation to the railroads to call their attention to the depreciation charge is indicated in Littleton's treatment of the subject. Numerous references are made by Littleton to reports of various railroad corporations and articles in the railroad journals of the nineteenth century, which indicate the preoccupation of these firms with the cost of equipment renewals and the method to be used to provide for it.[5]

By the early part of the twentieth century the use of wear and tear as an expense of operations seems to be fairly firmly established in the field of railroad regulation. This is pointed out by the following:

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[5]Ibid., pp. 227-236.

> . . . . The correct attitude has been taken in this country, too, by the Interstate Commerce Commission which has adopted as its rule the statement made by P. D. Leake: "One of the most vital matters connected with productive industries and trading concerns is the regular assessment with substantial accuracy of the annual net profit or loss which has resulted from the operations of each year; and unless a near approximation to the outlay on productive plant which has expired within each year is made and fully provided for out of gross revenue, no correct statement of profit and loss can be obtained. . . No profit can exist until Expired Outlay on Productive Plant has been provided out of Gross Revenue."[6]

Though it is not well to lose sight of the effects of the industrial revolution and the coming of the corporate form of business enterprise on the development of the concept and the use of the depreciation charge, it is perhaps not unfair to say that the fact of regulation of selling price was a more immediate factor. It is evident from the above excerpts that depreciation as a cost of production had not yet become an important part of the concept.

The conclusion should not be reached that with the appearance of federal regulation of railroads through the Interstate Commerce Commission there suddenly occurred the complete acceptance of the principal of depreciation. However, more and more attention was given to depreciation as the Interstate Commerce Commission gradually developed a system of uniform accounts and evolved the necessary tech-

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[6]United States Interstate Commerce Commission: Accounting Series, Circular No. 13, 1908. Cited in Henry Rand Hatfield, Modern Accounting (New York: D. Appleton and Co., 1916), p. 136.

niques of regulation.

The Influence of Income Tax Laws

The effect of the income tax laws enacted after the turn of the twentieth century was to add the weight of the Treasury Department to that of the ICC in emphasizing the advantages to the corporation of the use of the depreciation charge. The application of income tax laws to corporations of all types, whether of a public utility nature or not, resulted in pointing out the advantages to be gained by the use of the depreciation charge by all corporations. The general effect was to spread the use of the depreciation charge to practically all sections of the economy, whereas previous to the income tax laws its use seemed to concentrate in the areas of the economy subject to regulation by government commissions.

Saliers summarizes the situation like this:

> "Financial looseness" describes the accounting practices of industries at that time. The company bookkeepers, when closing their books, based the amount of the depreciation charge on the amount of profits earned in that year. A lean year caused the property to receive little or no charge for depreciation, while a prosperous year caused a liberal allowance to be made. The authorities had reason for either action at their fingertips, shifting from one side to the other as conditions warranted. But after the year 1909 the shift was to the side of larger depreciation charges, for in that year the Corporation Excise Tax Law was enacted. This law levied a 1% tax on net income of corporations in excess of $5,000. This net income was said to be the figure resulting after deducting ordinary and necessary expenses and all losses, including an

allowance for depreciation, from gross profit.[7]

In 1911, the Commissioner of Internal Revenue issued a decision relating to the Act of 1909 that summarized the decisions previously made. A part of the decision reads as follows:

> In the ascertainment of net income deduction will be allowed for depreciation arising from exhaustion of deposits of ore, mineral, etc., and for depreciation and obsolescence of improvements in accordance with general regulations respecting depreciation allowances, on the basis of the original capital investment cost of the properties concerned to the company reporting.[8]

It is necessary to guard against overemphasizing the effect of income tax laws on the use of the depreciation charge, but it is evident that the effect was considerable. Saliers had this to say in respect to the effects of the Act of 1909:

> . . . . Depreciation expense was made an allowable deduction and was universally deducted by those corporations affected by the act. The effect of the act on the growth of the use of the depreciation charge cannot be overemphasized. It was the first instance in which the writing off of depreciation as expense was definitely advantageous. That fact alone insured its general application.[9]

That Finney has essentially the same idea is illustrated by the following quotation:

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[7]Earl A. Saliers, Depreciation Principles and Applications (New York: The Ronald Press Co., 1939), pp. 17-18.

[8]Treasury Decision 1742, December 15, 1911, p. 10. Cited in Saliers, op. cit., p. 24.

[9]Saliers, op. cit., p. 18.

> The federal income tax law changed the attitude of many business men with respect to depreciation. Before the passage of the law, the attitude frequently was: How little depreciation can I take to make as good a profit showing as possible? Since the passage of the law, the attitude in many cases has become: How much depreciation can I take to reduce my taxable income?[10]

In view of the position taken by the above spokesmen of the accounting profession, it seems safe to conclude that the income tax laws were very influential in spreading the use of the depreciation charge throughout the major part of the economy. Perhaps the significant thing to be noted in the development of the depreciation concept and its growing use, is that there has been a constantly changing concept as to the nature of net income.

Original vs. Replacement Cost. One of the items of controversy regarding the depreciation charge, upon which much has been written and upon which extensive discussion has centered, is whether the depreciation charge should be based upon original cost or replacement cost. This matter did not become a problem of importance until the decade of the 1920's when the matter was brought to a head by the desire of management to write up the value of the assets. Finney and Miller have this to say about the period of the twenties:

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[10] H. A. Finney, and Herbert E. Miller, Principles of Accounting, Intermediate (New York: Prentice-Hall, Inc., 4th ed., 1951), p. 441.

> At the beginning of this period (the period of inflation during and after World War I), accountants were generally of the opinion that fixed assets should be carried in the accounts at cost, and that depreciation should be based on cost. But business men often thought otherwise. In some cases, business management wanted to write up the fixed assets to appraised values, while continuing to make depreciation charges on the basis of cost. In other cases, they wanted to write up the fixed assets and also base depreciation on replacement cost.
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> . . . . . .
>
> Accountants, therefore, reconsidered their position, and practice for a number of years indicated that many accountants had reached the conclusion that appraisals could be recorded in the accounts and reflected in the balance sheet, provided the increase in valuation was not credited to Earned Surplus but was carried to another account such as Reserve for Unrealized Increment per Appraisal. . . .[11]

During the period of the 1930's it seems that management had to reverse its position. The depression brought about low prices and slow business, with the result that depreciation charges based on either the original cost or the appraised cost appeared burdensome. With the same sort of reasoning that they used in the 1920's, they favored write-downs in the 1930's. The situation is clearly pointed up by Finney and Miller:

> But it is probable that most of the write-downs during this depression period were made for the purpose of establishing a lower depreciation base, thus reducing the depreciation charges so that more favorable operating results could be shown in the income statement. Such reductions in depreciation charges may have seemed, at the time, justified by a theory that was the converse of that which had previously been used by those who advocated charging operations with depreciation on replacement values which were in excess of

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[11] Ibid., pp. 470 and 471.

> cost. If profits should be reduced by increased depreciation charges to provide for the replacement of fixed assets on a rising market, then profits might presumably be increased by reducing the depreciation charges if the replacement cost of fixed assets had decreased.[12]

Speaking of the period following World War II Finney and Miller have the following to say:

> At the time of this writing (1951) we are again in a period of rising prices. During the inflation of the twenties, management was primarily concerned with high replacement costs from the balance sheet standpoint; it desired to write up fixed assets in order to reflect a better financial position, and thus increase the marketability of securities. This time, interest centers mainly in the income statement; management would like to be able to increase depreciation charges to a basis of replacement cost.[13]

The following excerpt from a 1947 report of the American Institute of Accountants' committee on accounting procedure is indicative of the AIA position at that time. In speaking of the problem created by the large amount of inflation since World War II and during the war the committee says:

> It has been suggested in some quarters that the problem be met by increasing depreciation charges against current income. The committee does not believe that this is a satisfactory solution at this time. It believes that accounting and financial reporting for general use will best serve their purposes by adhering to the generally accepted concept of depreciation on cost, at least until the dollar is stabilized at some level. An attempt to recognize current prices in providing depreciation, to be consistent, would require the serious step of formally recording appraised current values for all properties, and continuous and consistent depreciation

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[12] Ibid., pp. 478-479.

[13] Ibid., pp. 479.

> charges based on the new values. Without such formal steps, there would be no objective standard by which to judge the propriety of the amounts of depreciation charges against current income, and the significance of recorded amounts of profits might be seriously impaired.[14]

If this is taken to be a fair indication of the views of the accounting profession in general, we must face the possibility of more lenient attitudes by the accounting profession regarding the recording of fixed assets at the current appraised values. The primary point of objection in this report seems to be that the recording of fixed assets at the appraised values presents objectionable technical problems of recording. Consequently, once prices have become more or less stabilized this problem will no longer face the accountants, and perhaps it is safe to reach the conclusion that the stabilization of prices will produce the necessary ingenuity to make the adjustment.

Another use that has been made of the depreciation charge was the practice during World War II and during the period of rapid industrialization connected with the Korean War whereby the costs of certain facilities were written off over a period of five years. Whether this practice was necessary for the existing situation is not in question here, but it points up another use or another application of the

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[14]Committee on Accounting Procedure, Accounting Research Bulletins (New York: American Institute of Accountants, Dec. 1947), pp. 267-268.

concept of depreciation. Whether this practice be spoken of as accelerated amortization or accelerated depreciation the result is the same, it allows the recovery of the cost of the facility in a short period of time.

It seems pertinent to point out that an increased rate of depreciation on the same valuation of assets will produce the same results as an application of the established rate to an increased valuation. Accountants as a group appear generally to dissent to the proposed practice of writing up the asset values, and it is to their credit that the use of the appraised value is not the predominant practice in the business community. However, it is not so certain that they can have an equal amount of influence in maintaining a stable rate of depreciation to be applied against these relatively stable asset values. The rate to be applied appears to be subject to the control of the Bureau of Internal Revenue, and is thus subject to political considerations. The legislation recently passed by Congress to increase the rate applied during the early life of an asset appears to be a step in the direction of avoiding the well established rule of the accounting profession that militates against the use of the appraised values of assets.[15]

The depreciation charge is apparently not for the sole purpose of providing a fund for the replacement of

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[15]U. S. Statutes at Large, Vol. 68-A, Sec. 167, pp. 51-52 (1954).

plant and equipment that has worn out through use, but can be used for any number of things. Actually, the handling of this item by the general business community seems to rule out the possibility completely, and this appears to be the concensus of opinion of the accounting profession. The following quotation from Finney and Miller seems to sum up quite well the accountants' view on depreciation:

> People who are not trained in accounting often have the idea that the purpose of accounting for depreciation is to provide funds for the replacement of fixed assets when they wear out. Accountants are perhaps themselves to blame for this confusion because of their use of the expression "provision for depreciation." At any rate, there is a prevalent idea that depreciation is an expense for which a cash disbursement will be made in the future when replacement of the asset becomes necessary, and that the "depreciation provision" somehow provides for the expenditure.
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> From the accounting standpoint, depreciation is an expense for which the cash expenditure was made in the more or less remote past; any future expenditures which may be made to replace the asset will be capital expenditures which will subject the operations to a new series of depreciation expense charges.
>
> Depreciation provisions are in no sense replacement provisions. Writing off the cost of a fixed asset by charges to expense over a twenty-year period and writing off the cost of an insurance policy over a three-year period may, by including these elements in the cost of the product, increase the probability of recovering them in the selling price and thus obtaining funds which may be utilized for their replacement. But the entries recording the expiration of plant and insurance costs do not either provide or segregate funds for the replacement of the plant or the insurance.
>
> The segregation of funds for replacement purposes is not customary. Very few industrial concerns create such funds, as it is usually considered that the provision for financing replacements can be postponed until the necessity for, and the cost of, the replacements becomes definite. In the meantime, it is usually regarded as more advisable to retain the available funds in the working capital with the hope of earning a higher return by their use in operations than could be

obtained as income on fund investments.[16]

It can be concluded from this that the charging of depreciation may increase the selling price of the product, and that this increase may or may not be sufficient to enable the accumulation of funds that may or may not be used for replacement. Since the prevailing practice is to refrain from funding the depreciation, and since its place on the profit and loss statement prohibits the use of any funds accumulated by reason of the depreciation charge for the payment to stockholders, the use of such funds becomes apparent. This is pointed out in the last sentence of the above quotation. The available funds are used in the normal operations of the business; that is, they build up the working capital of the business; they are used to expand the business through an increase in the size of the fixed asset account; or they are used to finance the replacement of fixed assets.

Summary

By eliminating the sources and uses of funds that are restricted in use to the construction activities of cooperatives it was possible to present a picture of the financial results of the operating end of the cooperatives'

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[16] H. A. Finney and Herbert E. Miller, Principles of Accounting, Intermediate (New York: Prentice-Hall, Inc., 4th ed., 1951), p. 454.

activities. Those that were eliminated are either completely applicable to the fixed asset accounts, or they are included in the estimate of general funds invested in fixed assets because they are primarily applicable to the fixed asset accounts. This presentation shows that the depreciation reserve accounts for almost sixty-nine percent of the total sources, and the other important item, deferred interest, accounts for over twenty-four percent of the total sources.

The uses of the funds are relatively equally divided among current assets, payments to the REA, and investment in fixed plant and materials and supplies. It should perhaps be recalled that the payments to the REA included here make up all the loan repayments to REA, including advance payments. Over the life of the cooperatives the depreciation reserve has proved sufficient to provide funds to build up the current assets to their present level and to meet all payments to the REA. This becomes more meaningful when it is recalled that the payments to the REA include $841,400 in advance payments.

The estimated amount of general funds invested in fixed plant and materials and supplies is $3,148,100 and the estimated amount invested in fixed plant alone is approximately $1,500,000. On the assumption that an adequate amount of funds was available from the REA at the right time, this investment of general funds in fixed plant would have been unnecessary. We can conclude that the operations of

the cooperatives have resulted in their accumulation of approximately $3,989,500 above the amount needed for the current operations of the business, in addition to the build up of the working capital to $3,144,200.

It is apparent that the cooperatives are making the same use of the depreciation charge as is the general business community, that is, for building up working capital and for increasing the size of the fixed asset accounts. In the next chapter the reasons for accumulating a surplus are indicated, and the investment account is broken down into its component parts.

CHAPTER VII

THE REASONS FOR THE ACCUMULATION OF A SURPLUS

Introduction

The managers of the cooperatives that were interviewed by the writer indicated four major reasons why they desire to build up a surplus. These include the desire to provide adequate funds (1) for the repair and maintenance of plant and equipment, (2) for the replacement of worn out or obsolete equipment, (3) for financing repairs made necessary as the result of accidental damage to plant and equipment, and (4) for meeting the payments due on obligations to the REA. In this chapter these reasons are examined in relation to the administrative policies established by the REA. These administrative policies are influential in the determination of policies followed by individual cooperatives.

Maintenance and Repair of Equipment

The necessity for accumulating a surplus for the purpose of financing the maintenance and repair of plant and equipment rests on the assumption that as the distribution systems get older, an increased amount of funds will have to be expended for their upkeep. The REA requires that a loan

application be supported by an estimate of the annual cost of operating the system that is to be constructed with the loan funds. The administrative bulletin that contains the outline to be followed in meeting this requirement specifies that the cost of maintenance should be estimated as one percent of the estimated physical plant cost annually.[1]

In determining the economic feasibility and self-liquidity of a proposed project the revenues deriving from the project, with the proposed schedule of rates, should be sufficient to provide for the maintenance of the physical plant. Assuming that the schedule of rates is properly set, the revenues coming in will be sufficient to more than pay the cost of maintenance during the early life of the plant, but in the later years the revenues would be insufficient because of the increased amount of maintenance necessary. If all estimates related to the project were accurate, the amount of funds available for maintenance over the life of the plant would be just sufficient to cover the costs of repairs. It is doubtful that the estimates are as accurate as suggested here, but they are probably sufficiently accurate in most cases to provide a surplus to finance future maintenance.

The experience of the sixteen Oklahoma cooperatives

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[1]U. S. Department of Agriculture, REA, Administrative Policies, Rural Electrification Administration (Washington: Government Printing Office, 1950), Administrative Bulletin No. 75, p. 5.

over the five years for which data are presented may be indicative of the pattern of maintenance costs to be expected. Maintenance expenses as a percent of the value of the electric plant were 1.4 percent in 1947, 1.3 percent in 1948, 1.0 percent in 1949, and 0.7 percent for each of the years 1950 through 1952. Currently the maintenance costs are somewhat below one percent. Since most of the electric plant was constructed during this five year period it is likely that these cooperatives will experience rising maintenance costs in future years. The funds to finance these increased costs can come from the surplus that is currently being accumulated, or they can possibly result from electric power consumption greater than was thought possible when the estimates were made.

REA Policy on Plant Replacement

The policy of the REA regarding the replacement of the plant and equipment of rural electric cooperatives appears to have been established through the adoption of certain administrative procedures. The only part of the Rural Electrification Act that might be said to apply to plant replacement is the provision that the loans approved by the REA shall be self-liquidating. It is perhaps possible to construe this provision to mean that the loan of REA funds shall be made only under those circumstances wherein the borrower will be able both to repay the loan and keep the

electric system intact by accumulating a sufficient reserve fund to replace the entire system. It seems doubtful that this provision is the basis for the prevailing idea that the cooperatives must build up such a reserve, but the various aspects of REA policy regarding plant replacement can best be examined by reference to the administrative policies that establish the framework within which the cooperatives operate.

There are four Administrative Bulletins of the Rural Electrification Administration that are directly related to providing funds for plant retirement and replacement. These are Administrative Bulletins No. 9, 10, 64 and 75, the complete texts of which are contained in a compilation of REA Administrative bulletins published in 1950.[2] These will be taken up in the order of their importance to the subject.

Administrative Bulletin No. 10 establishes the policy of charging depreciation and sets up the schedule of rates to be applied. The policy and schedule of rates set up in this bulletin are as follows:

> 1. Borrowers of electrification loan funds shall record on an accrual basis each month an appropriate charge to reflect the estimated depreciation or decline in value of their capital assets in accordance with the following annual rates of depreciation for various plant items:

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[2]U. S. Department of Agriculture, REA, Administrative Policies, Rural Electrification Administration (Washington: Government Printing Office, 1950).

Plant Item	Annual Rate
Utility Plant	
Steam Production	2.52%
Internal Combustion	
High Speed	7.00%
Low Speed	3.00%
Distribution Plant	3.48%
General Plant	
Office Buildings - Wood	3.00%
Office Buildings - Concrete	2.00%
Office Furniture and Equipment	6.00%
Transportation Equipment	33.33%
Stores, Shop and Laboratory Equipment	6.00%
Communication Equipment	10.00%
Miscellaneous Equipment	4.00%

Depreciation for other plant items shall be charged in accordance with rates approved by the Administrator.[3]

Administrative Bulletin No. 75 outlines the procedure to be followed in determining whether or not the project for which a loan is asked from the REA will be self-liquidating. One of the major responsibilities given the REA by Congress is to see that the funds lent to rural electric systems are protected from loss. In order that this mandate be carried out, the REA has outlined many of the factors that have to be taken into consideration in determining whether or not any particular project for which a loan is desired is economically feasible. Bulletin No. 75 contains the general policy in this regard and at the same time outlines many of the details of the procedure of evaluation to be used. The general policy set forth in this

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[3] Op. cit., Administrative Bulletin No. 10.

bulletin is as follows:

> The determination that a loan made in accordance with Section 4 of the Rural Electrification Act of 1936, as amended, is self-liquidating and will be repaid out of system revenue within the loan period shall be made on the basis of a finding that during the period of the loan the consumption of electric energy at the rates to be charged will produce estimated revenues and receipts sufficient to cover: (1) all expenditures essential to the operation of the system, to maintaining and preserving the properties in good repair and working order, and to keeping the properties in continuous and adequate operation order to furnish the consumers served with a dependable supply of electric energy; and (2) all payments of principal and interest on the Government loans within the prescribed loan period.[4]

The above bulletin provides that before a loan application will be approved by the REA it must be shown that the system that is to be built or improved by the loan funds will produce sufficient revenues to keep the system in good repair, and it must be assumed that if this requirement demands the replacement of some of the capital assets, such replacement must be financed out of revenues. A later section of Bulletin No. 75 provides that in estimating the operating expenses of the proposed project an allowance must be made for maintenance and for replacement, each equal to one percent of the estimated physical plant cost. These allowances are on an annual basis. The bulletin also provides that: "The estimated expenditures shall not . . . anticipate the keeping of total book value of the borrower's assets equal

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[4] Ibid., Administrative Bulletin No. 75, Section 1.

to their original cost throughout the loan period."[5]

Administrative Bulletin No. 9 contains suggestions to the rural electric systems regarding the disposition of their general and operating funds. The section that applies to the present subject states in part as follows:

> . . . . . .
> of the surviving remainder, a part representing .09% of the depreciable value of the system should be transferred to Renewal and Replacement Funds account (114.2) for application to ordinary replacements up to an amount equivalent to the cost of the retired property, any excess replacement cost to be financed from general funds or loan funds; . . . . . [6]

In this bulletin it is suggested that the rural electric systems actually fund each month an amount for the replacement of the capital assets equal to .09 percent, or 1.08 percent annually. The conclusion suggested by the two preceding bulletins is that the rural electric systems should produce sufficient revenues to provide an adequate amount for repair and maintenance of plant and equipment, and an additional amount equivalent to 1.08 percent of the value of the fixed assets to provide for replacement. Administrative Bulletin No. 64 seems to imply that this will be sufficient to keep the systems in proper operating efficiency. This bulletin sets forth the following policy:

> Loans, except as provided herein, will not be made for the purpose of replacing units of property with like units made necessary because of normal depreciation

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[5] Ibid., Section 10.

[6] Ibid., Administrative Bulletin No. 9, Sec. 2 a (3).

> and wearing out of facilities, except for any excess cost of the new units over the cost of the units being replaced. If replacement units are different from the units being retired, the Administrator will consider applications for funds to finance any increase in the cost of such units over the cost of the units being replaced. Replacements of property made necessary by abnormal conditions, such as severe storms, may be financed with loan funds, depending on the circumstances in each particular case.[7]

There seems to be little room for doubt that the program of rural electrification has been set up with the goal in mind that the borrowers from the REA will be able to repay their loans in full with interest, and at the same time keep the systems virtually intact. The conclusion seems to be warranted that the REA has no plans at the present time for reinvestment in the rural electric systems, for obviously the Administrative Bulletins just surveyed make no provision for it.

This means that, as the program is now set up, the rural electric systems must be prepared to finance their replacements of plant and equipment. Taking a hypothetical case, it means that if a cooperative borrows $1,000,000 to construct a distribution system, it must be prepared to pay back the full amount of the loan with interest over the thirty-five year period of the loan, and over that thirty-five year period it must accumulate a sufficient reserve to replace as much of the plant as is necessary. It seems pertinent to inquire as to whether this is the best policy.

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[7] Ibid., Administrative Bulletin No. 64, Sec. 1.

In the first place it appears doubtful that this is the best policy from the standpoint of protection of the funds that are invested in the rural electric systems. Prosperous cooperatives will be able to repay their loans and maintain their plants virtually intact, but there will certainly be less prosperous systems that will be unable to do so. For the purpose of promoting the safety of the investments it seems that it would be desirable for the REA to adopt a policy of reinvestment in the event that some of the rural electric systems find it impossible to finance necessary replacements.

The present policy also seems undesirable from the standpoint of promoting one of the major goals of the rural electrification program, that of making available an adequate supply of electric power to every rural family that desires it. The announced policy of promoting or aiming at area coverage seems to be obstructed by a policy that requires that the price of the service be high enough to more than pay for the system over the loan period. This goal can best be attained by adopting a policy that will price the service at the lowest possible level. A lower price for the service would enable some rural families to have electricity in their homes that are unable to do so now because of the cost, and it would be a strong stimulant for increasing the use of electric power in both the farm home and in farming operations.

The established policy seems to be undesirable from still another viewpoint. It is recognized that the promotion of economic growth results in benefits to the entire society, and it is apparent that this benefit is measured in terms of the increased amount of goods and services that are available to the population. It is true also that the goods and services produced in the economy must be consumed if the benefits of their production are to be realized. Electric power is a derived energy resource and at the present time plays an important role in promoting efficient economic production. The fullest possible use of this resource is to be desired from the point of view of increasing the efficiency in the production of agricultural and industrial goods. There is little doubt that a lower price for electric power in the rural areas would favorably influence the amount of goods produced in both sectors of the economy. An increased use of electric power on the farm will raise the efficiency level of the farming operations, and it will at the same time increase farm use of goods produced in the industrial sector of the economy. This interrelationship has already been shown to be of considerable value to the economy as a whole through the purchase of electric appliances and farm equipment by the rural users of electric power.

This point seems to have important bearing on a specific problem in agriculture at the present time. The

need for irrigation of large areas of agricultural land has opened up a big market for electric power and electrical equipment, and it is necessary that the cost of the power to the users be as low as possible. It is necessary from the point of view of keeping farm costs down, and it is also necessary from the standpoint of enabling the cooperatives to compete with the other forms of energy available for use in irrigation. Electrical equipment has many advantages over other types of equipment for irrigation, but these advantages are not sufficient in many cases to convince the potential user that he should choose electricity instead of, for example, natural gas.

A final observation regarding the present REA policy may be in order. Technological improvements are constantly being made in the methods of producing and distributing electric power, and if the rural electric systems are to maintain the necessary level of efficiency to warrant their continued existence they must constantly adopt the new techniques. Some of the improvements are likely to require large amounts of additional funds if they are to be incorporated into the systems, and some will be likely to be less costly than the item used today. In either case it seems apparent that the cooperatives will constantly have need for additional funds for construction purposes, and it seems desirable that an adequate supply of investment funds be available at all times if the cooperatives are to be able to

adopt the improvements.

From the point of view of promoting technological improvements and increasing efficiency in the generation and distribution of electric power, it seems desirable that the cooperatives not be denied access to a sufficient amount of funds to keep their capital equipment up to date. There seems to be little advantage in accumulating a reserve for the replacement of the equipment when there is no way of knowing what type of equipment will be available at the time that replacement is necessary, and when there is no way of determining what the price of the equipment will be. There seems to be room for little doubt that the cooperatives will be able to make much better use of technological improvements if there is available an unlimited supply of capital funds at a low rate of interest, than they will if they have to depend upon their ability to accumulate the necessary funds from operating revenues. It seems plausible for the REA to adopt a policy whereby it would stand ready to loan funds to a cooperative for the replacement of its worn out or obsolete equipment, and otherwise to act as a perpetual source of capital funds.

A common objection to this type of policy is that the cooperatives would be in perpetual debt, but it seems that this should not be assumed to be a disadvantage. If the commercial power companies can operate with a perpetual debt, the cooperatives can also, and as with the former this

should not be considered a lack of prudent and successful management. Certainly there is no difference between a reinvestment policy by REA and the refunding operations of public utilities.

Storm and Ice Damage

It was noted earlier that one of the reasons the cooperatives desire to build up a surplus is to protect themselves against damage from storms and ice. These damages cannot be foreseen and prevented, and the cost of insurance protection would be prohibitive. It is possible that any one or several cooperatives may at any time suffer such an amount of storm or ice damage that the cost of repair and replacement cannot be financed out of the cooperative's funds unless a surplus has been built up of sufficient size. It is difficult to arrive at any well-founded conclusion as to what amount of surplus is needed for this sort of damage, and about all managers of cooperatives can do is hope that the surplus that they are able to build up is sufficient.

The characteristics of storm and ice damage seem to be such that an individual cooperative finds it difficult to prepare for. No cooperative is immune to such damage, but it seems that it would seldom happen that all or even a majority of the cooperatives would suffer severe damage at the same time. Up to September 30, 1952 there had been

thirteen cases of damage to the sixteen Oklahoma cooperatives over their entire life. Through 1946 there were only two cases of damage, one from ice which amounted to $65,000 to one cooperative, and the other from storm and flood which amounted to $10,000 damage to one cooperative. The other occurrences of damage were three in 1947, one in 1948, four in 1949, two in 1950, and one in 1951.

Table 19 summarizes the storm and ice damage to the sixteen cooperatives. The total amount of ice damage through September 30, 1952 was $315,300, and the total storm damage over the period was $58,000, making a grand total of $373,300. The year in which damage was heaviest was 1949 when the total damage was $144,600 spread among four cooperatives. All of the damage that year was due to ice. One of the cooperatives has suffered damage twice, one has suffered damage three times, and eight have suffered damage one time. The cooperative that has run into misfortune three times, ice in every case, has suffered a total loss of $262,000, or 70 percent of the total. The next highest damage of any cooperative was $45,000 due to storm.

The information on the eight other distribution cooperatives in Oklahoma, summarized in Table 20, shows that they have suffered a total of $132,700 damages over their entire life, $124,000 of which was due to ice in 1949. This brings the total damage to all distribution cooperatives in Oklahoma to $506,000 over their entire life, slightly over

TABLE 19

STORM AND ICE DAMAGE TO 16 OKLAHOMA REA CO-OPS, CUMULATIVE THROUGH 1946, ANNUALLY, 1947-1952*
(Thousands of dollars)

	Through 1946	1947	1948	1949	1950	1951	1952
Ice Damage	65.0	0.0	35.0	144.6	68.0	2.7	0.0
Storm Damage	10.0	48.0	0.0	0.0	0.0	0.0	0.0
TOTAL	75.0	48.0	35.0	144.6	68.0	2.7	0.0

*Source: Data obtained through personal interview with managers of the co-ops.

Note: Data refer to end of year, except that data for 1952 refer to first nine months.

TABLE 20

STORM AND ICE DAMAGE TO 8 OKLAHOMA REA CO-OPS, CUMULATIVE THROUGH 1946, ANNUALLY, 1947-1952*
(Thousands of dollars)

	Through 1946	1947	1948	1949	1950	1951	1952
Ice Damage	0.0	0.0	0.0	124.0	7.5	1.2	0.0
Storm Damage	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	124.0	7.5	1.2	0.0

*Source: Data obtained by personal interview with managers of the co-ops.

Note: Data refer to end of year, except that data for 1952 refer to first nine months.

53 percent of which was suffered in 1949. In the case of the sixteen Oklahoma cooperatives, slightly over 84 percent of all damage suffered was due to ice; in the case of the other eight Oklahoma cooperatives ice damage accounted for 100 percent of the total; and for both groups combined, ice accounted for over 88 percent of total damage.

The first damage recorded to one of the Oklahoma cooperatives was in 1942, thus our data cover almost eleven years of the life of the cooperatives. The total amount of damage of $506,000 is an average of less than $50,000 per year, whereas the damage in 1949 alone was $268,600. The average damage per cooperative per year over the eleven-year period was less than $3,000, whereas one cooperative suffered $132,000 damages in one year. This seems to be a problem that can best be solved by some sort of insurance plan set up among the cooperatives. A small amount paid into the Statewide Association each year by each cooperative would spread the risk over the entire group so that no one cooperative would be in danger of virtual bankruptcy as the result of unavoidable misfortune.

Any such plan would of course benefit the unfortunate cooperatives more than the fortunate, as is the case with any insurance plan, but a pooled reserve would protect all cooperatives more effectively than each cooperative could protect itself. The amount of funds that would have to be accumulated for the group as a whole would be much

less than if each one established a reserve of its own. Since the program of rural electrification has been established through the use of the cooperative type of organization, it seems that some sort of insurance plan would be the logical device for providing this type of protection. This would work quite well on a state basis, and it would work better on either a regional or national basis.

At some time in the past the manager of one of the cooperatives in Oklahoma suggested a plan whereby a cooperative that suffered damage would receive aid from the other cooperatives through the Statewide Association. The aid to be received was in the form of man-hours of work donated by the other cooperatives, and a record of the number of hours donaged and received by each cooperative was to be recorded in the Statewide Association office. The cooperative suffering the damage was either to furnish or pay for the materials used, but since no provision was made for settling up for the hours of work this part would amount to a gift. However, this plan was not accepted, but a schedule of prices that could be charged one cooperative by another was established in order that the temptation to over-charge a damaged cooperative was removed.

Although there is a rather high degree of cooperation among the individual cooperatives, effected through their numerous district, state, and regional conferences and schools, each cooperative functions primarily as an

independent economic unit. Cooperation between the individual cooperatives seems to be limited largely to training programs, the exchange of information about common problems, matters concerned with legislation, and to some extent in the area of assuring an adequate supply of electric power. The value of this type of cooperation can hardly be overemphasized and it can probably be used to an even greater extent than it is currently, but it appears that a broadening of this spirit of cooperation into the area of operations would prove to be financially beneficial.

Payments to REA

A primary reason for the accumulation of a surplus by the cooperatives is the necessity for meeting the quarterly payments for the retirement of the principal and deferred interest on the loans from REA, and to meet the current interest payments. Even though the current interest payments appear on the statement of operations as a charge against current operations rather than as a deduction from the gross obligation to the REA, they have been combined for the purpose of this presentation because it facilitates the computations of the future payments. The size of the future payments to be made to the REA is an important consideration in determining the necessary size of any surplus to be built up, and in determining whether or not the cooperatives are operating in such a way that they can accumulate the

necessary surplus.

The procedure used in computing the size of the payments to be made to the REA in the future is explained in Appendix I. The essential fact that allows a computation of the future payments is that the loans received by the cooperatives have a five year deferment period, which makes it possible to compute the payments for five years beyond the final date of the data. The loans are made for a thirty-five year period, but they are amortized over a thirty year period beginning five years from the date the loan was executed. The interest that accumulates during this five year period is amortized along with the principal of the loan. Since this is the case, and since the current interest charge is fixed at two percent per annum on the unpaid balance, it is possible to compute the size of the payments that will have to be made through the fifth year beyond the final date of our data. Thus, the payments through 1957 can be computed.

Table 21 contains the amount of actual payments of principal and interest to REA by the sixteen Oklahoma borrowers and for all REA electrification borrowers, along with the percent change from year to year. The data on the sixteen Oklahoma cooperatives are the actual payments made from 1948 through 1952, and the payments from 1953 through 1957 are estimates; while the data on all REA borrowers are the actual payments from 1948 through 1953, and the payments

TABLE 21

PRINCIPAL AND INTEREST PAYMENTS OF 16 OKLAHOMA COOPERATIVES AND ALL REA BORROWERS, ANNUALLY, 1948-1957[a]
(Thousands of dollars)

Year	Amount of Notes Executed[b]	16 Oklahoma Cooperatives[c]		All REA Borrowers[d]		Year
		Payment	Percent Change from Previous Year	Payment	Percent Change from Previous Year	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1948	$ 6,373.0	$ 496.9	- -	$ 31,708.8	- -	1948
1949	10,240.0	491.2	- 1.1	34,967.9	↗ 10.3	1949
1950	7,085.0	727.7	↗ 48.1	36,463.5	↗ 4.3	1950
1951	4,998.6	722.8	- 0.7	40,880.4	↗ 12.1	1951
1952	2,187.0	1,000.5	↗ 38.4	51,662.6	↗ 26.4	1952
1953	- -	1,144.1[e]	↗ 14.3	59,413.4[e]	↗ 15.0	1953
1954	- -	1,543.4[e]	↗ 34.9	70,000.0[e]	↗ 17.8	1954
1955	- -	1,946.3[e]	↗ 26.1	86,300.0[e]	↗ 23.3	1955
1956	- -	2,204.5[e]	↗ 13.3	100,100.0[e]	↗ 16.0	1956
1957	- -	$2,402.9[e]	↗ 9.0	$109,200.0[e]	↗ 9.1	1957

[a]Source: Data on 16 Oklahoma cooperatives from Table 11 and records of individual cooperatives. Data on all REA electrification borrowers from U. S. Department of Agriculture, Report of the Administrator of the Rural Electrification Administration, 1953 (Washington: Government Printing Office, 1954), p. 36.

[b]For Oklahoma cooperatives only.

[c]Data are for calendar year.

[d]Data are for fiscal year and for electrification borrowers only.

[e]Estimated data for all REA Borrowers were estimated by the REA.

from 1954 through 1957 are estimates. The data for the two groups are not fully comparable because the data for the Oklahoma cooperatives are for calendar years and the data for all REA borrowers are for fiscal years. The amount of notes executed is presented for the Oklahoma cooperatives only, and covers the years during which that amount is reflected in the estimation of payments.

The data do not reveal why there was a decrease in the amount of payments from 1948 to 1949, but it is probable that it is to be explained in the same way as the decrease from 1950 to 1951. The decrease between the latter two years was due to the fact that in 1950 a note of $200,000 was paid in full before it matured. This circumstance also accounts for the 48.1 percent increase in payments in 1950 over 1949. According to the estimate the payments to be made in 1957 will be an increase of 140.2 percent over the payments made in 1952, and this compares with an increase of 146.0 percent in the amount of notes executed following 1947. Reference to Table 7 shows that the amount of notes executed as of December 31, 1947, was $22,877,500, and that this increased to $55,272,500 on September 30, 1952. As a result of these loans over this period, the payments due the REA are estimated to increase from $1,000,500 in 1952 to $2,402,900 in 1957.

The implication to be drawn from the above data is that the annual revenues of the cooperatives must increase

sufficiently between 1952 and the end of 1957 to provide funds for meeting an approximate $1,400,000 increase in interest and principal payments to the REA, or the surplus funds in the hands of the cooperatives must be sufficient to make up any difference. The attention given to this by the REA is indicated in the following sub-section.

The View of the Rural Electrification Administration. The Rural Electrification Administration feels a keen responsibility for safeguarding the security of the loans made to the rural electric systems, and a debt service earned ratio has been developed for the purpose of identifying those borrowers who may be faced with loan security problems. The computations for arriving at this ratio are explained in the following excerpt from the Administrator's report for 1953.

> . . . . The debt service earned ratio is computed by dividing the amount available for debt service (total revenues less operating expenses, taxes, and estimated replacements equal to 1 percent of utility plant in service) by the maximum debt service requirement (average debt service rate of 4.7 percent times the sum of advances on unpaid notes and net transfers of obligations at the end of the year). . . .[8]

A borrower that has a debt service earned ratio of 100 percent or more is not considered to be a loan security problem, and if a borrower has a ratio of less than 100 percent this borrower may or may not be considered a loan

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[8]U. S. Department of Agriculture, REA, 1953 Report of the Administrator of the Rural Electrification Administration (Washington: Government Printing Office, 1954), p. 36.

security problem, depending upon the weighted age of the electric system based on miles of line in service. Some indication of the expected relation between the weighted age of a system and its debt service earned ratio can be obtained from the bulletin that outlines the procedure for determining the economic feasibility of a proposed loan. A part of the bulletin is reproduced below.[9]

Weighted age of system based on miles in service	Percentage of average annual debt service based on plant in service for previous calendar year available from excess revenues
Under 20 months	50 percent or less
20 to 40 months	75 percent or less
41 to 60 months	90 percent or less
Over 60 months	Less than 100 percent

The above plan is used to determine whether or not a field appraisal should be made when a loan application is up for approval. The application to the problem of loan security is indicated as follows:

> REA recognizes that a deferment period is essential during the initial development of a borrower. The debt service earned ratio a borrower is expected to achieve varies with its weighted age based on miles in service. The debt service earned ratio is not a meaningful figure for borrowers with a weighted age under 25 months. On the other hand, borrowers with a weighted age of more than 72 months can normally be expected to achieve a debt service earned ratio of 100 percent or more. The number of borrowers whose debt service earned

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[9]U.S. Department of Agriculture, REA, Administrative Policies, Rural Electrification Administration (Washington: Government Printing Office, 1950), Bulletin no. 75.

> ratios indicate they constitute a potential or, in some cases, an actual loan security problem, taking into consideration the borrower's weighted age, was 192. It is reasonable to expect that the financial condition of many of these borrowers will improve materially as they gain experience and operating ability and as their kilowatt-hour sales increase. These borrowers, together with those few in default on payments, are those toward which the agency's loan security program is directed.[10]

The preceding quotation is an indication of the close supervision of the rural electric systems by the REA. This close supervision is for the purpose of protecting the loans to the cooperatives, and the formula noted earlier for determining the debt service earned ratio shows the extent of the precaution to safeguard these funds. The significant parts of the formula are the provision for allowing one percent for replacement, and the provision for determining the maximum debt service requirement by applying the 4.7 percent rate to the amount of the advances from REA as of the year for which the ratio is computed.

Considering only the distribution-type borrowers, the number whose debt service earned ratio was less than 100 percent for the twelve months ending December 31, 1952, was 357.[11] As was indicated in the above quotation from the Administrator's report, 192 of these are considered to be either potential or actual loan security problems when the

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[10] U. S. Department of Agriculture, REA, 1953 Report of the Administrator of the Rural Electrification Administration (Washington: Government Printing Office, 1954), p. 36.

[11] Ibid.

weighted ages of the systems are taken into consideration. The data are not available for computing the weighted age of the fifteen Oklahoma cooperatives that are over five years old, but the debt service earned ratio has been computed for each of these.

The debt service earned ratio of each of the fifteen Oklahoma cooperatives, along with the necessary data for making the computation, is shown in Table 22. The ratio has been computed for each cooperative based on each of the four following conditions: (1) the REA advances through 1952 with no allowance for the replacement reserve; (2) the REA advances through 1952 with the one percent replacement allowance; (3) the REA advances through 1947 with no allowance for the replacement reserve; and (4) the REA advances through 1947 with the one percent replacement allowance.

The REA makes its computations on the basis of the second situation listed above, and as is apparent from the table this results in a debt service earned ratio of less than 100 percent for the maximum number of cooperatives. According to the REA method of computation, ten of the fifteen cooperatives have a ratio of less than 100 percent. If one item in the REA computation, the one percent replacement allowance, is eliminated, the number of cooperatives that have a ratio of less than 100 percent drops to two. The amount of revenue required to provide for the one percent replacement reserve is $463,500, and this is almost

TABLE 22

OPERATIONAL DATA AND DEBT SERVICE EARNED RATIO OF 15 OKLAHOMA COOPERATIVES, 1947 AND 1952*
(Thousands of dollars)

Co-op Number	Total Revenues	Total Expenses	Margin Available, No Allowance for Replacement	Utility Plant	One Percent Depreciation Allowance	Margin Available, One Percent Allowance for Replacement	REA Advances		Debt Service Earned Ratio			
									Based on 1952 REA Advances		Based on 1947 REA Advances	
							1952	1947	No Allowance	One Percent Allowance	No Allowance	One Percent Allowance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	$431.6	$213.6	$218.0	$4,097.5	$41.0	$177.0	$3,972.4	$1,500.9	116.8	94.8	309.0	250.9
2	428.8	245.2	183.6	3,345.6	33.5	150.1	2,752.5	1,024.3	141.9	116.0	381.4	311.8
3	408.4	238.9	169.5	3,519.6	35.2	134.3	3,367.0	1,766.6	107.1	84.9	204.1	161.7
4	323.0	181.2	141.8	2,760.9	27.6	114.2	2,720.6	1,258.7	110.9	89.3	239.7	193.0
5	236.5	109.3	127.2	2,429.1	24.3	102.9	2,783.0	592.2	97.2	78.7	457.0	369.7
6	296.5	119.2	177.3	3,361.3	33.6	143.7	3,341.1	984.4	112.9	91.5	383.2	310.6
7	326.5	176.7	149.8	2,581.7	25.8	124.0	2,567.9	1,702.3	124.1	102.7	187.2	155.0
8	204.0	97.7	106.3	1,760.5	17.6	88.7	1,654.0	989.0	136.7	114.1	228.7	190.8
9	276.1	143.2	132.9	2,621.7	26.2	106.7	4,210.2	359.6	67.2	53.9	786.3	631.3
10	203.2	104.4	98.8	2,783.6	27.8	71.0	2,743.5	790.2	76.6	55.1	266.0	191.2
11	342.4	180.4	162.0	2,981.6	29.8	132.2	3,463.0	684.7	99.5	81.2	503.4	410.8
12	266.0	124.7	141.3	2,798.4	28.0	113.3	2,780.0	1,211.4	108.1	86.7	248.2	199.0
13	632.4	359.6	272.8	4,436.8	44.4	228.4	4,290.4	1,970.9	135.3	113.3	294.5	246.6
14	300.0	164.5	135.5	2,799.4	28.0	107.5	2,692.9	1,320.8	107.1	84.9	218.3	173.2
15	430.1	219.2	210.9	3,972.4	39.7	171.2	4,029.6	1,243.6	111.4	90.4	360.8	292.9

*Source: Compiled and computed from Tables 4, 5, and 7 of this study.

nine percent of the total revenues of these cooperatives during 1952.

The debt service earned ratio for each of these cooperatives has been computed on the basis of the REA advances through 1947 in order to point up one of the significant parts of the pattern of operation of the rural electric systems. In using the REA advances through the year for which the ratio is computed, a cooperative can have a 100 percent rating only if its revenues are sufficient to meet the principal and interest payments that will exist five years in the future. That is, assuming that all of the loans obtained since 1947 have a five year deferment period, payments on these loans will begin to come due in 1953, with the result that revenues in 1953 need be only of the necessary amount to meet principal and interest payments on those loans obtained through 1948. That is, interest and principal payments on loans obtained in 1948 do not begin until 1953.

This seems to explain why cooperatives with less than a one hundred percent rating accumulate surplus funds. It is not so much the fact that in setting the price of service to their members the cooperatives make an allowance of one percent of the value of the electric plant in service for a replacement reserve, as it is that the rates to consumers are set at the level that will provide sufficient revenues to meet principal and interest payments five years

in the future.

The application of 4.7 percent to the amount of the REA advances through the year for which the ratio is being computed does just what the above quotation from the Administrator's report indicates: it gives the figure that indicates what the maximum debt service charge will be on the basis of the funds advanced through the year for which the computation is made. But this maximum debt service does not require expenditures by the cooperative until the notes which were the basis for the advances are in the repayment period, that is, five years after the date of issue. The fifteen Oklahoma cooperatives can be used as an example to illustrate the effect of this procedure.

The funds advanced to the fifteen Oklahoma cooperatives amounted to $47,368,100 as of the end of 1952. The application of 4.7 percent to this figure gives $2,226,301 as the maximum debt service. The actual payments made by these fifteen cooperatives during 1952 amounted to about $1,000,000. This difference of over $1,200,000 is an indication of the extent to which a cooperative with a 100 percent rating will be receiving revenue in excess of required payments on principal and interest. The total revenue of these fifteen cooperatives amounted to $5,174,100 in 1952, and the above difference amounts to over 23 percent of this figure. Taking into consideration that the one percent allowance for replacement amounted to nine percent of the

revenues of the fifteen Oklahoma cooperatives, it means that in order for a cooperative to get a 100 percent rating it must be receiving total revenue that exceeds the current expense requirements by approximately one-third.

Evaluation. It appears necessary that some attempt be made to explain why the plan of operations of the rural electric systems is such that it results in the accumulation of a large surplus. This surplus accumulates, as with the sixteen Oklahoma cooperatives, even if they are operating below the desired one hundred percent debt service earned ratio. The REA figure for 1952 was to the effect that three hundred and fifty-seven of its borrowers were operating in that year with a ratio of less than one hundred percent. Thus, in the neighborhood of six hundred and fifty distribution-type borrowers had a ratio of one hundred percent or more. If borrowers such as the Oklahoma cooperatives accumulate large surplus operating below the desired rating, then the surplus accumulated by the six hundred and fifty borrowers must be even larger yet.

As of June 30, 1953, all REA borrowers in the nation had made advance payments on principal amounting to $56,767,853, slightly over twenty-five percent of the total principal payments due during fiscal year 1953. As of the same date the amount of principal that was overdue more than thirty days was $611,118, and the amount of interest that was more than thirty days overdue was $122,332. This total,

$733,450, is attributable to thirty-four borrowers, and it amounts to 0.20 percent of the total principal and interest due during fiscal 1953. This is perhaps more revealing of the number of REA borrowers that are at the present time an actual loan security problem.[12]

It seems that the desire of the REA to assure the safety of the funds invested in the individual cooperatives is the primary motivation for using a formula that marks so many borrowers as a potential loan security problem. If a cooperative can operate in such a way that it is prepared to meet its payments five years in advance of the due date it almost certainly will not be a loan security problem.

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[12] Ibid., p. 38.

CHAPTER VIII

THE USES OF THE SURPLUS

Introduction

In the preceding pages it has been shown that the sixteen Oklahoma cooperatives have accumulated surplus funds amounting to $7,133,700. Some of these funds have been invested in the fixed assets and have been used to expand the size of the electric distribution systems. An additional amount has been paid into the Rural Electrification Administration in order to build up a cushion of credit in the event the cooperatives are unable to meet interest and principal payments out of current revenues at some future time. A third use of the surplus has been to build up the working capital.

In this chapter the composition of the working capital is indicated and the various uses of the surplus are evaluated in relation to the needs of the cooperatives. The working capital is composed of general cash, the investment account, notes and accounts receivable, and prepayments. The total of these accounts less the current liabilities gives the working capital figure. From the point of view of

the managers of cooperatives only the amount in the investment account is considered to be a surplus. The other accounts making up the total working capital are considered to be necessary and arise from the normal day to day operations of most business enterprises. If the amount in the general cash fund becomes greater than the management thinks is necessary to meet the payments made in the day to day operations, some of this is used to purchase securities or to make advance payments. It is possible that the managers allow a greater amount to remain in the general cash fund than is necessary for efficient operation, but the decision as to how much general cash to have available must be left to them.

On this assumption the analysis in this chapter is limited to the amount invested in fixed plant, the amount of advance payments made to the REA, and the amount that is in the investment account. The latter account is broken down as to types of securities in which investments have been made. Suggestions are made which might promote the fullest use of the amount in the general cash fund, but no attempt is made to determine what the size of the account should be.

Total Uses

Over the entire life of these cooperatives they have invested a total of $5,434,300 in the three uses noted earlier. More than 79 percent was invested since 1947

(Table 23). Of the total such uses 57.9 percent went into fixed plant and materials and supplies, 26.6 percent went into various securities and "Other Investments," and 15.5 percent went into advance payments to establish a cushion of credit. The emphasis has shifted from advance payments to security investments during the last three years covered by the data. The amount going into fixed plant and materials and supplies shows a tendency to decrease in relative importance, although it is not at all certain that this will continue. The shift of emphasis from advance payments to various types of securities is likely to be a permanent shift because of the prevailing idea among cooperative managers that they may in the future need the income that can be earned on such investments.

On the other hand, the amount invested in fixed plant is dependent upon the needs of the distribution systems in extending electric service to all possible consumers in the rural area, and the need to increase the carrying capacity of the distribution systems because of the increasing use of electric power. The availability of funds from REA will have an important influence on the cooperatives in this respect. Changing political administrations affect the amount of funds provided by REA to the cooperatives, and in the event that an economy drive in the federal government results in making available a smaller amount of funds for rural electrification, the cooperatives may have to depend

TABLE 23

INVESTMENTS OF 16 OKLAHOMA REA COOPERATIVES, ANNUAL AND CUMULATIVE, FOR SELECTED YEARS THROUGH 1952[a]
(Thousands of dollars)

Type of Investment[b]	Through 1947	1948	1949	1950	1951	1952	1948 to 1952	Through 1952	
Investment Account[c]									
(1) Government Bonds.....	$ 51.5	$ 4.6	$ 35.8	$ 32.1	$572.3	$378.2	$1,023.0	$1,074.5	(1)
(2) Federal Savings and Loan Associations.....	0.0	0.0	0.0	100.0	130.0	80.0	310.0	310.0	(2)
(3) Investment Companies.....	0.0	0.0	0.0	0.0	15.2	4.6	19.8	19.8	(3)
(4) Other Investments[d].....	3.0	6.6	-5.1	3.6	3.1	29.3	37.5	40.5	(4)
(5) Total.....	$ 54.5	$ 11.2	$ 30.7	$135.7	$720.6	$492.1	$1,390.3	$1,444.8	(5)
(6) Advance Payments[e].....	$ 241.6	$ 59.6	$ 31.7	$ -9.1	$242.9	$274.7	$ 599.8	$ 841.4	(6)
(7) General Funds Invested in Fixed Plant[f].....	825.8	873.7	627.0	605.1	0.8	215.7	2,322.3	3,148.1	(7)
(8) TOTAL.....	$1,121.9	$944.5	$689.4	$731.7	$964.3	$982.5	$4,312.4	$5,434.3	(8)

[a]Data refer to end of year, except that data for 1952 refer to first nine months.

[b]There was an additional investment of $12,500 in 1952 in the form of time deposits. This is carried in the general cash account.

[c]Basic data obtained from the balance sheets of the individual cooperatives, with the breakdown of the account obtained by personal interview of the managers.

[d]"Other Investments" include investments in other cooperatives and "Restricted Funds."

[e]Data from Table No. 7 of this study.

[f]Data from Table No. 16 of this study.

more upon their own funds for the necessary expansion. It is possible, therefore, that the amount of the surplus going into fixed plant may not merely hold its own, but may actually increase in the future.

Of the total investments of all types five cooperatives accounted for 65.5 percent of the total in 1947, and the same five cooperatives accounted for 45.5 percent of the total on September 30, 1952. The cooperative with the largest amount of total investments had a total of $795,600, and the cooperative with the smallest had a negative total of $76,400. There was only one other cooperative that had less than $200,000 in total investments of all types. The cooperative with the negative total suffered severe ice damage amounting to over $250,000 over its entire life, nearly $200,000 of which was suffered since January 1, 1949.

The Investment Account

Government Bonds. The large increase in the investment account between 1947 and September 30, 1952, is reflected primarily in the amount invested in government bonds. The amount invested in government bonds was $51,500 at the end of 1947, and this increased to $1,074,500 on September 30, 1952. Thus, practically all of the investments in government bonds have been made since 1947, and $950,500 of the total was made in 1951 and 1952.

Government bonds purchased by the cooperatives are

the Series J and K. The Series J bonds are available in denominations of $25, $100, $500, $1,000, $5,000, $10,000, and $100,000. The above are the maturity values, the bonds being sold at a discount. The yield is 2.76 percent per annum if held until maturity, the period being twelve years. The series K bonds are in denominations of $500, $1,000, $5,000, $10,000, and $100,000, and are sold at face value. Interest is payable semiannually by Treasury check, and the rate of return is 2.76 percent per annum if held to maturity. Any person or organization can purchase a maximum of $200,000 of series J and K combined each year.[1]

Investments of this type are guaranteed both as to principal and interest, and the funds so invested are available at any time after six months from the date of purchase. These bonds offer protection against falling prices but not against rising prices, except to the extent that the earned income cancels the price increase. The cooperatives receive a slightly higher interest rate for these investments than they pay the government for their loan funds and have a full guarantee of both principal and interest from their own lender.

Federal Savings and Loan Associations. The total amount invested in Federal Savings and Loan Associations,

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[1]U. S. Treasury Department Circular, 1952 Department Circular No. 906, dated April 29, 1952, pp. 3-10.

$310,000 on September 30, 1952, is held by two cooperatives only. The rate of return on this type of investment is slightly higher than that for government bonds, the usual rate to be expected being up to 3½ percent. The rates earned by the two cooperatives that had such investments were 3 percent in one case and 2½ percent in the other.

In order to assure safety of principal when investing in Federal Savings and Loan Associations, the cooperatives should take care not to invest more than $10,000 in any one association. Such investments are insured by the Federal Savings and Loan Insurance Corporation up to a maximum of $10,000 in any one association for any one investor. Investments of this type by the cooperatives can be spread among a large number of associations in such a way that all investments of this nature will be guaranteed as to principal.

The interest rate paid by the Federal Savings and Loan Associations varies from zero upward. Managers of cooperatives can investigate the policies of the various associations and invest in those that offer the best combination of safety and rate of return. The associations can not guarantee any set rate of return for an extended period of time, although they may be in a position to assure a given rate of return for a short period. Investments in Savings and Loan Associations are protected against falling prices because of the principal guarantee, but offer no

protection against rising prices except to the extent that income from these investments enables the cooperatives to increase the funds available for use in operations.

Investment Companies. The $19,800 invested in Investment Companies was made by one of the sixteen Oklahoma cooperatives. Investments of this type are not guaranteed either as to interest or principal, and the rate of return to be expected from such investments may run as high as five percent or more per year. An investment company or trust is a business organization that pools other people's money and invests it in varied securities. The rate of return the company will be able to pay is dependent upon the securities in which it invests and the operating policy of the company, for a part of the investment returns are used to pay the expenses of operations. It is apparent that the investment company will be unable to guarantee any given rate of return, or even guarantee any return at all.

The cash turned over to an investment company for investment purposes is available at the desire of the individual or organization turning over the cash, but there is no guarantee that the same amount can be taken out as was put in. Investment companies spread their investments into many areas, some of which are either intentionally speculative or later become so. Speculative investments may pay a relatively higher rate of return, but the investor runs the risk of losing part or all of his principal. Consequently

the investment company is unable to guarantee to return to its customers the same amount of money that was turned over to it for investment. There is the possibility that it may be able to return more than it received, but this again is dependent upon the investments made and the operating policies of the company.

The uncertainty of the rate of return and the security of the principal in this type of investment is due to fluctuations is corporation profits and fluctuations in the prices of corporation stocks and bonds. An investment company receives income mainly in the form of dividends and interest on the stocks and bonds that it has purchased, and from the sale of stocks and bonds at a price higher than was paid for them. During the current period of prosperity the market price of securities has gone up, and corporation profits have been large. As a consequence the income of investment companies has been large, and they have been able to pay lucrative dividends.

Depression tendencies in the economy increase the risk attached to corporation securities, and may have the result that some securities that were originally considered as non-speculative become mildly or extremely speculative. A full-fledged depression generally creates havoc in the securities market, and investors are subject to losing all cash so invested. The higher rate of return paid by investment companies is a reflection of the speculative nature of

their investments, and a cooperative can not expect to earn a high rate of return without leaving itself open to the possibility of losing a part of the principal invested. The investment company may be able to provide protection against rising prices, but protection against falling prices is doubtful.

Other Investments. The category classes as "Other Investments" makes up a relatively small part of the investments of the cooperatives. This item is composed of two general types of transactions. One of these is the result of investments by the cooperatives in other cooperatives, and is generally of a small amount. For example, a group of distribution cooperatives may combine in the establishment of a cooperative for the generation and transmission of electricity, or for the purpose of purchasing needed supplies. Each cooperative joining this combination has to pay a membership fee, and this is recorded in the Other Investments account. Such combinations of cooperatives are known as federations of cooperatives and are relatively common in the rural electrification program.

The second component of the Other Investments account is restricted funds. This account contains primarily the funds that have been set aside for exclusive use in the replacement of worn out equipment. The funds in this account are usually invested in government bonds, but the account is generally allowed to build up to several thousand

dollars before an investment is made. Where the cash has been invested, such investment appears in the category of securities in which the investment was made. The amount in the Other Investments account amounted to $40,500 on September 30, 1952.

Advance Payments

Payments made to the government in advance of the due date are tantamount to investment of a like amount in securities that pay a rate of return of two percent. This is because an advance payment reduces the amount of the balance due the government by the cooperatives, and current interest is figured on the amount of the unpaid balance at the rate of two percent per annum. Thus the amount upon which interest is computed is reduced by the amount of the advance payments, resulting in a saving to the cooperatives. The earnings on advance payments are in the form of a reduction in the amount of current interest the cooperatives have to pay. Advance payments amounted to $241,600 through 1947 and increased to $841,400 by September 30, 1952.

The advantage of advance payments is that cash tied up in this way is guaranteed as to principal and rate of return. For practical purposes advance payments provide protection against both falling and rising prices, but only in a limited sense in the case of rising prices. The reduction in the amount of the current interest payment leaves a

larger fund out of which an increase in the cost of labor and operating supplies may be met.

Although advance payments can be used only to meet the interest and principal payments to the government, they can be used for this purpose at any time the cooperatives desire to put them to such use. This freedom of use means that the cooperatives can divert current revenues to uses other than the payment of interest and principal to the extent that such payments can be met by drawing down advance payments. For example, a cooperative may find that it would be able to make a necessary or desired expenditure of $50,000 if it was not for the fact that this amount was needed to meet interest and principal payments. If the cooperative has built up a sufficient amount of advance payments, it can draw on these to meet the payments to the government and expend the $50,000 from current revenues for the previously determined purpose. Thus, even though cash used to build up advance payments is limited to such use, in practice this does not place a limitation upon its use by the cooperatives.

Investments in Fixed Plant

Investments in fixed plant amounted to $825,800 at the end of 1947, and this increased to $3,148,100 by September 30, 1952. As noted earlier, there has been a tendency for the amount going into fixed plant annually to decrease

since this reached a high of $873,700 in the year 1948. The year in which the amount going into fixed plant was the lowest was 1951 when $800 was invested in this way. It should be noted that these annual figures are net, and do not show the composition of the annual investments of the sixteen cooperatives. For example, for some years a cooperative may show a negative investment of general cash, indicating that during that year it was able to reimburse the general cash fund for some of the previous investments in fixed plant.

Data computed on each individual cooperative show that in 1951, the year of lowest net investment of general cash in fixed plant, there was a negative investment of $240,200. This reimbursement of general cash was accounted for by six of the sixteen cooperatives, the other ten showing an investment of $241,000. The data indicate that over the entire life of the cooperatives a total of $4,071,700 was invested in fixed plant from the general cash fund, but that $923,600 was reimbursed, leaving a total net investment of $3,148,100. There were only three cooperatives for which the investment exceeded the reimbursement in every year covered by the data. This is the picture as revealed by the year-end data, and since such data are by their nature net figures, the data do not reveal how much was invested and then reimbursed during the year.

As was the case with the investment account and the advance payments to REA, a few of the cooperatives account

for a large proportion of the total investments of general cash in fixed plant. Four cooperatives accounted for almost 61 percent of total general cash so invested through 1947, and the same four accounted for slightly over 43 percent of the total through September 30, 1952. In 1947 there were only four cooperatives that had over $100,000 each invested in fixed plant, while in 1952 there were only four that had less than $100,000 so invested.

Other Investment Possibilities

There are other investment possibilities available to the cooperatives, such as time or savings deposits in commercial banks, treasury bills, and bonds of the Consumer Cooperative Association of Kansas City. Savings deposits in commercial banks earn a rate of return ranging from zero up to 2½ percent per annum, and even though the bank may require ninety days, six months, or more notice before the account is drawn upon, in practice the banks generally allow use of the account without any prior notification. There is no guarantee of the rate of return on savings accounts but the funds so deposited are guaranteed up to $10,000 for any one depositor in any one bank. This is the case where the bank is a member of the Federal Deposit Insurance Corporation. This type of investment provides protection against falling prices but not against rising prices.

Treasury bills are issued by the United States

Treasury and mature in ninety-one days. The interest rate earned varies with conditions in the money market, and over a period of several years may fluctuate in a range from three percent to less than one percent. For practical purposes the funds so invested are available immediately, and the principal is safe. Such an investment offers protection against falling prices and also usually against rising prices. It might be desirable for the cooperatives to make use of treasury bills if the other investment opportunities have been exhausted temporarily because of full use of purchase quotas, or if the cash available for investment is to be needed within a period of time shorter than six months. Both time deposits and treasury bills can be used for investment of general cash that might be needed on short notice.

The Consumer Cooperative Association offers ten-year bonds with an interest rate of above four percent. The safety of the principal is not guaranteed, and the interest is guaranteed only by the issuing firm. A disadvantage is that the funds are tied up for a ten-year period. Such an investment would offer protection against falling prices but not against rising prices.

Summary

The cooperatives made various uses of the surplus that built up, and there was a decided increase in the rate

of the build-up during the period following 1947. The primary form of investment contained in the investment account was government bonds of the Series J and K type, and the second largest investment was in Federal Savings and Loan Associations. There were some investments in investment companies, but this was limited to one cooperative. Almost as large an amount of advance payments had been made as had been invested in government bonds, and a larger amount had been used to expand fixed plant.

The cooperatives desire to build up a surplus for the purpose of financing the maintenance and repair of equipment, for the replacement of equipment that wears out, for financing the costs due to accidental damage to equipment such as storms and ice, and for the purpose of meeting future payments to REA. With these purposes in mind it seems that the cooperatives should be concerned about the safety of the principal, the availability of the funds invested, and the rate to return to be expected. United States Government bonds seem to be the best from the standpoint of safety of the principal and guarantee of a return. Federal Savings and Loan Associations are safe as to principal, but the rate of return is not guaranteed. Neither of these investments offers protection against rising prices but both protect against falling prices. Investment companies seem to offer the best protection against rising prices, and the rate of return may be somewhat higher than

on the other types of investments, but the speculative nature of such investments reduces the appeal of these from the standpoint of safety of principal.

CHAPTER IX

SUMMARY AND CONCLUSION

The central problem of this study was to trace the flow of funds through sixteen Oklahoma rural electric cooperatives for the purpose of indicating the sources and uses of the surplus funds accumulated by these organizations. Data on these sixteen cooperatives were obtained from the managers and other personnel, and the monthly reports submitted by them to the REA. Data were also presented for all of the REA cooperatives in Oklahoma and for all REA cooperatives in the nation. These data were obtained from the reports on the rural electrification program published by the United States Government Printing Office.

Data presented in Chapter II showed that in general the rural electrification program in Oklahoma paralleled that in the nation as a whole. The percent of farms receiving central station electric power increased in the nation as a whole from 11.6 percent in 1935 to 92.3 percent on June 30, 1954; for Oklahoma the increase was from 2.6 percent in 1936 to 83.8 percent on June 30, 1954. The rural areas of the United States are served with electric power by

commercial power companies and rural electric cooperatives, the latter obtaining funds for construction purposes from the federal government. Through the REA the federal government had lent over $2,600,000,000 through 1953 to finance the rural power program. Through 1953 over $110,000,000 of loans had been approved for rural electric cooperatives in Oklahoma.

The data showing the growth of the sixteen Oklahoma cooperatives (Chapter III) indicated that the years following World War II have been years of rapid growth. About two-thirds of the funds made available to these cooperatives through 1952 were received between 1947 and 1952. On September 30, 1952, these cooperatives were receiving revenue from the sale of electricity equal to almost two and three-quarters times the amount received in 1947. The data showed a steady improvement in the working capital of these cooperatives, and also showed that advance payments amounted to $841,400 on September 30, 1952.

A comparative analysis of operating revenues and expenses of all REA borrowers in the nation, all REA borrowers in Oklahoma, and the sixteen Oklahoma cooperatives was useful in pointing up the important items of expense. The analysis showed that for all REA borrowers operating expenses had been increasing as a percent of revenues, whereas for the Oklahoma cooperatives the percent was decreasing. This was shown to be due to the fact that the

Oklahoma cooperatives purchase power at a lower cost than the average cost to all REA borrowers in the nation. The analysis also showed that interest expense and depreciation expense were a considerably higher percent of revenues in the case of Oklahoma cooperatives than in the case of all REA borrowers in the nation. When these two items of expense were expressed as a percent of the amount of loan funds advanced, there was shown to be no appreciable difference between the two.

For the purposes of this study the word "surplus" was defined to mean the amount by which the flow of funds into the cooperatives exceeded the payments currently required to be made. The operations of cooperatives that result in an inflow of funds were classified as (1) those related to funds borrowed from the REA to finance construction, and (2) those related to the purchase and sale of electricity. Since the funds obtained from the REA are limited to use in construction activity, they were not considered to be a part of the surplus accumulated by cooperatives. The area related to the purchase and sale of electricity was analyzed, through the use of the Balance Sheet and the Report of Loan Fund Transactions, in order to indicate the amount of the surplus. This analysis showed that the sixteen Oklahoma cooperatives had accumulated working capital in the amount of $3,144,200, had made principal payments in advance of the due date in the amount of $841,400,

and had invested $3,148,100 of the general cash fund in fixed assets. The total of these items, $7,133,700, was indicated to be the amount of surplus funds accumulated by the sixteen Oklahoma cooperatives over their entire lives.

The source of the surplus funds was the revenues from the sale of electric power, but the absence of an operating margin of sufficient size to account for the surplus indicated that some expenses had been charged against operations that had not required an outflow of funds. Through use of a modified form of the application of funds statement it was possible to classify all of the balance sheet accounts as either a source or use of funds. An examination of the accounting system used by cooperatives made it possible to identify the accounts that contained amounts that had been charged against operations, but which had not resulted in equivalent payments. The accounts were the depreciation reserve and deferred interest, both of which contained large balances. These two items accounted for over two-thirds of the total sources of funds, and the uses of funds were divided relatively equally among current assets, payments to the REA, and investment in fixed plant and materials and supplies.

An examination of the evolution of the concept and use of the depreciation charge showed that cooperatives make the same uses of the funds that accumulate from its use as other types of business organization. The funds that

accumulated from the use of the depreciation charge were used to build up working capital and to increase the size of the fixed assets. Some of the working capital was held in the form of investments outside the cooperatives.

The managers indicated to the writer that the reasons for the accumulation of a surplus are to provide adequate funds (1) for the repair and maintenance of plant and equipment, (2) for the replacement of worn out or obsolete equipment, (3) to finance repairs necessary as the result of accidental damage to plant and equipment, and (4) to meet payments due on obligations to the REA. An examination of the administrative policies of the REA indicated that the REA requires that cooperatives set electric rates at the level that will provide adequate funds for all of the above except number three. Provision for accidental damage, mainly due to storms and ice, appeared to be prohibitively costly on an individual cooperative basis. A pooled reserve made up of payments from all cooperatives would seem to provide adequately for this contingency, and such a pool was suggested by the writer.

The uses of the surplus by the cooperatives include a build up of working capital, advance payments to the REA, and investments in fixed assets. Included in working capital was the investment account which contained $1,444,800. This amount was invested in government bonds, Federal Savings and Loan Associations, investment companies, and

"other investments." Advance payments amounted to $841,400, and general funds invested in fixed assets amounted to $3,148,100. This is a total of $5,434,300, and is the amount that the managers of the cooperatives would consider to be surplus. The total surplus as it was defined for this study amounted to $7,133,700. The difference between these two figures, $1,699,400, was held in the form of general cash, prepayments, notes and accounts receivable, and miscellaneous debits. The amount in the general cash fund was $1,111,100.

APPENDIX I

COMPUTATION OF FUTURE PAYMENTS TO REA

The size of the payments that will have to be made to the REA in the future is determined for the next five years by the amount of loans received by the cooperatives over the five years preceding the final date of the data. The size of the payments in the years beyond the next five years will be partially determined by the amount of loans received over the years following the final date of the data. It is apparent that to estimate the size of payments beyond the five year period following the final date of the data, it would be necessary to make some assumptions about the rate at which the cooperatives are going to need additional funds in the future.

It is possible to compute the size of the payments for the five years following 1952, the final date of the data. It should be recalled that the loans obtained from the REA have a five-year deferment period, during which time no payments are made on the loans. A loan is to be paid back in full with interest at the end of thirty-five years after the date on which the note covering the loan was

executed, but the payments are actually made over a thirty-year period that begins after the passage of five years from the date the note was executed. Since the data go through the year 1952, it is possible to compute the additions to total payments made in 1952 as the result of loans having been executed during the years 1948 through 1952. Actually, the data are as of September 30, 1952, which means that the computations will be through September 30, 1957.

The data are complete as to dates and amounts of the loans on over eighty-six percent of the total amount of loans executed over the period 1948 through September 30, 1952. For the remaining almost fourteen percent the data show the amount of the loans executed as of the end of each year from 1948 through 1951, and as of September 30, 1952. Consequently the computations entail only a small amount of estimation. The payments to be made on the loans for which the exact dates of execution are known can be computed accurately. The payments on those loans for which the exact dates of execution are not known will be estimated in a manner to be explained later.

There is one other item that has to be taken into consideration in the computations. During the five-year deferment period interest accumulates on the funds that are advanced on the executed notes. The full amount of this interest is amortized over one hundred and twenty equal quarterly payments along with the amortization of the loan

principal. The amount of the accumulated interest shown in the data is on an annual basis. Thus, it is possible to compute the amount of the deferred interest payment as of the end of 1953 on the basis of the total amount of accumulated interest as of the end of 1948. This means that the computations will be accurate only for the end of the years 1953 through 1957. This, however, will give a picture of the size of the total payments due REA at year-end intervals that is accurate with the exception of the estimated payments due on those loans for which the exact dates of execution are not known.

The amount of the loans for which the exact dates of execution are not known is $4,128,600. These loans are distributed over the years 1948 through September 30, 1952, as follows: $360,000 in 1948, $865,000 in 1949, $1,080,000 in 1950, $1,433,600 in 1951, and $390,000 through September 30, 1952. These are the amounts for which the payments must be estimated. To make this estimation the assumption was first made that the notes covering the total amount of the loan for each year were executed as of the last day of that year. This gives the minimum amount of the payment that would have to be made on the loans executed during that year. Actually, on the basis of such an assumption the payment to be made is zero. That is, the addition to total payments for the year is zero, which leaves the minimum total payment the same as the total payment for the year computed on the

loans for which the exact dates of execution are known. Thus, the total payment for 1953 as computed on the basis of the known loans becomes the minimum amount of payment after we take into consideration that an additional amount of loans was executed some time during the year 1948.

Secondly, the assumption was made that the total amount of loans executed during each year was executed on the first day of the year. This gives the maximum amount of the payment that would have to be made on the loans executed during that year. Thus, the total payment for 1953 as computed on the basis of the known loans plus the maximum amount of payment that can be incurred as a result of the execution of additional loans during 1948, gives the maximum amount of the payment that will have to be made in 1953 after taking into consideration that an additional amount of loans was executed during 1948.

Table 24 contains the results of the basic computations. The principal and current interest payments for the various quarters from 1953 through September 30, 1957, shown in the second column, are based on the loans for which the exact dates of execution are known. The payment on deferred interest is shown in column three and is computed only for the final quarter of the year. This computation is based on the known amount of accumulated deferred interest as of the end of each year and as of September 30, 1952. There is no satisfactory way of estimating the amount of increase of

TABLE 24

COMPUTATION OF FUTURE PAYMENTS TO REA BY OKLAHOMA COOPERATIVES, QUARTERLY, 1953-1957*
(Thousands of dollars)

Year and Quarter	Principal and Current Interest for Known Dates of Execution	Increase in Deferred Interest		Estimated Principal and Current Interest for Unknown Dates of Execution		Total		
		Minimum	Maximum	Minimum	Maximum	Minimum	Median	Maximum
1953	$ 132.6	0	$ 6.0	0	$ 16.0	$ 132.6	$ 143.6	$ 154.6
1st qt.	$ 10.2	0	$ 1.5	0	$ 4.0	$ 10.2	$ 13.0	$ 15.7
2nd qt.	27.4	0	1.5	0	4.0	27.4	30.1	32.9
3rd qt.	41.0	0	1.5	0	4.0	41.0	43.8	46.5
4th qt.	54.1	0	1.5	0	4.0	54.1	56.8	59.6
1954	$ 496.5	$ 6.0	$16.4	$ 16.0	$ 54.4	$ 518.5	$ 542.9	$ 567.3
1st qt.	$ 82.0	$ 1.5	$ 4.1	$ 4.0	$ 13.6	$ 87.5	$ 93.6	$ 99.7
2nd qt.	114.3	1.5	4.1	4.0	13.6	119.8	125.9	132.0
3rd qt.	142.6	1.5	4.1	4.0	13.6	148.1	154.2	160.3
4th qt.	157.5	1.5	4.1	4.0	13.6	163.0	169.1	175.2
1955	$ 843.4	$16.4	$31.6	$ 54.4	$102.4	$ 914.2	$ 945.8	$ 977.4
1st qt.	$ 178.8	$ 4.1	$ 7.9	$ 13.6	$ 25.6	$ 196.5	$ 204.4	$ 212.3
2nd qt.	205.9	4.1	7.9	13.6	25.6	223.6	231.5	239.4
3rd qt.	228.4	4.1	7.9	13.6	25.6	246.1	254.0	261.9
4th qt.	230.2	4.1	7.9	13.6	25.6	248.0	255.9	263.7
1956	$1,029.4	$31.6	$49.2	$102.4	$166.0	$1,163.4	$1,204.0	$1,244.6
1st qt.	$ 237.5	$ 7.9	$12.3	$ 25.6	$ 41.5	$ 271.0	$ 281.1	$ 291.3
2nd qt.	252.0	7.9	12.3	25.6	41.5	285.5	295.7	305.8
3rd qt.	268.9	7.9	12.3	25.6	41.5	302.4	312.5	322.7
4th qt.	271.0	7.9	12.3	25.6	41.5	304.5	314.7	324.8
1957	$1,169.8	$49.2	$66.8	$166.0	$183.2	$1,385.0	$1,402.4	$1,419.8
1st qt.	$ 281.2	$12.3	$16.7	$ 41.5	$ 45.8	$ 335.0	$ 339.3	$ 343.7
2nd qt.	291.6	12.3	16.7	41.5	45.8	345.4	349.8	354.1
3rd qt.	297.0	12.3	16.7	41.5	45.8	350.8	355.1	359.5
4th qt.	300.0	12.3	16.7	41.5	45.8	353.8	358.2	362.5

*Source: Computed from data furnished by each cooperative.

deferred interest each quarter, which means that total payments can be obtained only as of the last quarter of each year. Columns (4) and (5) are computed on the basis of the assumptions made regarding the time of execution of the loans mentioned previously, and column (6) was obtained by converting the total payments made during 1952 to an annual figure and converting this to a quarterly figure. The quarterly totals shown in column (7) are the sums of the quarterly totals in columns (2), (3), (4), and (6); and the quarterly totals in column (9) are the sums of the quarterly totals in columns (2), (3), (5), and (6). Column (8) is the midpoint between the minimum and maximum. The annual rate at end of year is obtained by converting the final quarterly totals to annual totals, and the yearly increase in principal and interest payments is the total of the quarterly payments for that year.

Evaluation of the Procedure

The computation of the principal and current interest payments shown in column (2) leave nothing to be desired. These payments begin after the passage of five years from the date of the execution of the loan, and the quarterly payments are the same amount for any particular loan throughout the amortization period of thirty years. The amount of this payment is obtained by multiplying the number of thousand dollars of the loan times $11.10, and is thus a mechanical

operation. The fact that the loans are seldom executed on the first day of any particular quarter means that the first payment due on a particular loan is some fraction of the quarterly payment, and that the last payment, with which we are not concerned, is the remaining fraction of the total quarterly payment. Thus, the quarterly payments shown in column (7) are always composed of a fractional part of a quarterly payment on those loans executed during the same quarter in the year five years previous, and full quarterly payments on those loans executed prior to this.

These computations on a quarterly basis show the way in which the size of the quarterly payments increase during any one year or over the entire period. This indicates a limitation of the data shown in column (6). Since the data for 1952 are based on total payments for the year up to September 30, the total payments made during this nine months period were increased by a third to convert them to an annual total. This total was then divided by four to get the size of the quarterly payment. Since, as the data show, the size of the payments increase through the year, it is apparent that the figure of $250,100 underestimates the size of the quarterly payment as of the end of 1952. This would be the case whether or not the 1952 data were converted to an annual figure. There is a counter-balancing factor, however, for included in the 1952 payments is a payment to retire one note in full before its due date. This payment

amounted to approximately $30,000, which means that the quarterly payment for 1952 is overestimated by $7,500. Since there is no satisfactory way of adjusting for these over and underestimates, it appears that the median payment should be taken as the closest approximation to the actual annual rate of payment.

There is one more observation that perhaps should be made. The additions to current interest and principal payments were computed on the basis of certain assumptions, and even though the assumptions have to do with normal operations they should at least be noted here. For example, the assumption has been made that the cooperatives will draw down all of each loan during the five year deferment period. In other words, the computations were made on the assumption that there would be no partial or complete cancellations of loans. The assumption was also made that the total payments to be made would not be reduced due to one or more of the cooperatives paying off some of the earlier loans in full. It seems to have been the practice for some of the early loans to be paid off in full when a cooperative felt that it was financially able to do so, and it is probable that the practice will continue. To the extent that this is done the total payments coming due will be decreased, but the probability that this will affect the total payments to any appreciable degree is remote.

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The major part of the original data was obtained from unpublished records of the REA cooperatives in Oklahoma, supplemented by personal interviews of the managers and other personnel of these cooperatives. The records of the cooperatives from which the data were obtained included (1) the balance sheets, (2) the statements of operations, and (3) the reports of loan fund transactions.