

RURAL ELECTRIFICATION ADMINISTRATION IN KANSAS

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Table of Contents

	Page
A RESUME OF THE REA IN THE UNITED STATES	1
Background Of The REA	1
Granting Of Loans	3
What Brought About The REA?	4
Growth Of The REA In The United States	5
Advantages Of Rural Electric Cooperatives	9
Area Coverage	10
Importance Of Rural Electricity	11
THE REA IN KANSAS	13
Growth Of The REA In Kansas	13
First Energized REA Cooperative In Kansas	24
Influence Of The REA On A Kansas Community	26
Where Kansas REA Co-ops Buy Their Power	28
Increase And Improvement Of Appliances	29
Practical Uses Of Electricity On The Farm	32
Helping Kansas Industry	35
REA Owned By Members	36
REA Subject To Taxation	37
Problems Of The Future	38
BIBLIOGRAPHY	40
APPENDIX	41
Map - Headquarters Of The 36 REA Cooperatives In Kansas	42

Page

Map - Percentage Of Farms Receiving Central Station Electric Service, June 30, 1941	43
Map - Percentage Of Farms Receiving Central Station Electric Service, June 30, 1950	44
Appropriations And Expenditures Of The Rural Electrification Administration	45
1951 Rural Electrification Survey By The Kansas State Corporation Commission	46-47
Rural Electrification Administration Loan Authorization	48

Preface

I wish to acknowledge the help given to me in the preparation of this report. My major instructors, Dr. V. R. Easterling and Dr. A. B. Sageser, through helpful suggestions and advice, contributed greatly toward the completion of my report. The Honorable Clifford R. Hope of Kansas, chairman of the House Agriculture Committee, sent me a number of sources on the subject of my report that was very valuable to me. Mr. Joe Jenness, executive secretary of the Kansas Electric Cooperatives, Inc., imparted to me in an extended personal interview, information which he had gained through his many years of close association with rural electricity. Last, but not least, I wish to thank my wife who skillfully typed this report while keeping one eye on our active two year old son.

A RESUME OF THE REA IN THE UNITED STATES

Background Of The REA

During the first three decades in the development of the electrical industry, little or no attention was paid to rural America either by publicly or privately owned systems. Neither the farmers nor the hundreds of small towns expected it. The harnessing of the mysterious forces of electricity was a marvelous¹ invention for city folk and city folk alone.

In 1910, the electric utility industry recognized the potentialities² of the farm market. The industry investigated these potentialities and attempted to capitalize on them by educating the farmer to the uses of its product.³ They had difficulty selling their product, however, because of its cost. Farmers were usually required to pay for the construction of lines to serve them which were built and the title taken by the companies. Valuations ranged from \$2,000 to \$3,000 and even \$5,000 per mile of line. The next requirement was a monthly payment sufficient to guarantee a profit to the company or, in cases in which the company financed the line, to insure return of the capital within five or six years. In addition, the rates for energy used were high. They ranged from 8 cents to as high as 25 cents per kilowatt hour. A few freak rates ran as high as

1 Harry Slattery, Rural America Lights Up, p. 1.

2 Ibid., p. 2.

3 Ibid., p. 3.

40 cents per kilowatt hour.¹ By 1924, only 2.6 per cent of farms² in the United States had central station service.

In July 1922, representatives of the National Electric Light Association and of the American Farm Bureau Federation met in Chicago and discussed the problem of electricity on the farm. This led to the organization on September 11, 1923, of the Committee on the Relation of Electricity to Agriculture which became known as the "CREA".³ The CREA was primarily a fact-finding organization. It was hoped and expected that the findings of such a committee would prove to the farmers of America that the installation of electric energy would be profitable to them. It was also an educational agency. Through news letters, scientific reports, and articles in the regular press and technical and trade journals, it kept farmers and industry informed of its discoveries.⁴ However, this attempt to electrify rural America also failed because costs of services and construction were not considered, and it was not possible for the average farmer to pay cash for construction of lines or contract for expensive wiring and equipment.⁵ On January 1, 1935, only 10.9 per cent of our farms were electrified.⁶

On May 11, 1935, President Roosevelt issued an Executive Order (7037) creating the Rural Electrification Administration

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- 1 Ibid., p. 5.
 - 2 Ibid., p. 4.
 - 3 Ibid., p. 15.
 - 4 Ibid., p. 17.
 - 5 Ibid., p. 24.
 - 6 Ibid., p. 23.

and authorizing it "to initiate, formulate, administer, and supervise a program of approved projects with respect to the generation, transmission, and distribution of electric energy in rural areas."¹ This order was issued under authority of the Emergency Relief Appropriation Act of 1935, approved April 8, 1935, (49 Stat. 115) Statutory provision for the agency was made by the Rural Electrification Act of May 20, 1936 (49 Stat. 1363; U.S.C. 901-14). Under Reorganization Plan II effective July 1, 1939, the Rural Electrification Administration became a part of the Department of Agriculture.² The Rural Electrification Act of 1936 gave REA permanent status and authorized a 10-year lending program. In 1944 Congress extended this lending program indefinitely. Congress annually determines the amount of funds REA may lend.

REA is headed by an Administrator who is appointed by the President for a 10-year term. His appointment is confirmed by the Senate, and in his official actions he is responsible to the Secretary of Agriculture. The present Administrator is Ancher Nelson of Minnesota, who took office April 29, 1953.

Granting Of Loans

In the field of rural electrification, REA was empowered to make loans to qualified borrowers, with preference to nonprofit

¹ Ibid., p. 27.

² C. F. Keyser, "A Thumbnail Sketch of the Rural Electrification Administration," Legislative Reference Service, July 31, 1947.

and cooperative organizations and to public bodies. Loans were made to cover the full cost of constructing power lines and other electric facilities to serve persons in rural areas who were without central station electric service.

A cooperative usually had 30 years to repay a loan, plus interest. As of October, 1951, the department reported, the farmers were more than 50 million dollars ahead of schedule in repayments.

What Brought About The REA?

A transmission line can cost from \$1,500 to \$2,000 a mile¹ to build. It is expensive to maintain, especially in winter, when storms tear at it and ice lays a heavy hand on the strands. Consequently the lines grew first in the towns and cities and in thickly settled communities where there were hundreds of customers to the mile. To serve farmers scattered over hundreds of square miles was a problem in costs. As W. L. Porter, vice president of the Kansas City Power and Light Company, puts it today: "The companies would have bankrupted themselves if they had attempted to cover all rural areas with distribution lines." So, in 1935, the REA was established. It loaned money to farmers at low interest, gave them long repayment periods. The cooperatives are exempt from federal income taxes but do pay local taxes. At

1 Salina Journal, April 12, 1953, p. 27.

the same time the government gave the cooperatives preference on electricity generated at federal dams. The movement grew slowly at first and then moved ahead with gathering momentum. It hit the farms--and industry as a whole--with terrific impact. It has interesting social implications.

REA itself operates no rural electric facilities, and its program involves no grants or subsidies. REA loans are repaid from the operating revenues of locally-owned, locally-managed systems it finances. Part of each consumer's monthly payment for electricity goes to pay off the Government loans. REA serves principally as banker to local systems. It's main functions are to lend money and to give technical advice and counsel where needed in the construction and operation of the borrower's facilities.

Growth Of The REA In The United States

Farm electrification had advanced very slowly in the United States during the 53-year period from 1882, when the first central generating system went into service, to 1935, when REA was created. A few farms were connected to power lines prior to World War I. The early 'twenties saw a short-lived spurt in which progress made in electrical engineering was reflected by a small increase in the number of farms served. However, only 10.9 per cent of all farms in the United States were receiving central station

electric service by 1935.¹ Few power lines had been built beyond the immediate vicinities of cities and towns.

Farmers and farm organizations, chafing at the slow rate of progress, increased their demands for Government action in the field of rural electrification. The result was the establishment of REA, with an action program whose first objective was to make electric service available to farm people who were without electricity.

Since it's establishment, REA has greatly stimulated the extension of service into rural areas. Between 1935 and June 30, 1951, nearly 4,000,000² additional farms had been connected to central power lines by all agencies, public and private. More than half of the farms connected to central station lines since 1935 received electric service from REA-financed systems. The remainder were added to lines of other suppliers, many of which were stimulated to greater activity in the rural field by the REA program.

REA estimated that 4,520,620 of the farms recorded in the 1950 Census, or 84.6 per cent, were electrified by June 30, 1951. More than 800,000 of the Nation's farms still were unelectrified. In addition, hundreds of thousands of rural nonfarm dwellings, crossroads, businesses, schools, churches, and other rural establishments were without electricity.

1 "The REA Rural Electrification Program", Mimeographed Report on Rural Electrification Administration, U.S. Dept. of Ag., p. 2.
2 Loc. Cit.

In 25 states the department's figures show nearly total coverage. Michigan (98.9), Indiana (97.9), New Hampshire (97.4),¹ and Iowa (87.1) were leading the list.

The great change was brought about largely by creating farmer-owned cooperatives, financed by the federal government. This was a dream of men like Senator George Norris of Nebraska and Gifford Pinchot of Pennsylvania more than 40 years ago.

Many of these unelectrified farms are situated in isolated areas, or in areas of relatively low farm income. Consequently, the most difficult part of the rural electrification extension job remains to be completed. However, the REA program has succeeded in establishing a pattern which eventually can provide virtually every unserved farm in the country with electric service.

By April 1, 1952, REA had approved \$2,521,241,073 in loans to 1,078 borrowers. These included 987 cooperatives, 41 public power districts, 25 other public bodies, and 25 commercial power companies. At that time, REA had on file or in process in the field additional loan applications totaling more than \$250,000, 000² for new system construction and various line improvements. Most of these applications were in connection with existing systems financed by REA.

Over 1,000 of these REA borrowers had rural electric facilities in operation. Their facilities included almost 1,200,000 miles of line serving about 3,700,000 farms and other rural con-

¹ Salina Journal, April 12, 1953, p. 27.

² U.S.D.A. Mimeographed Report, Op. Cit., p. 3.

sumers in about 2,600 counties of 46 states, Alaska, the Virgin Islands, and Puerto Rico.¹ Additional lines were being built rapidly to reach the out-of-the-way places.

Of all the loans thus far approved by REA, over 80 per cent have been for electric distribution facilities. REA makes generation and transmission loans only when borrowers are unable to purchase an adequate supply of power or when a saving would result. Approximately 18 per cent of the REA loans have been for construction of generating plants and transmission lines. About one per cent of the loans have been made to power system operators for financing farmstead installation of wiring, plumbing, fixtures, electrical equipment and appliances, and irrigation facilities.

Membership in rural electric cooperatives was not confined to farmers. It was open to all people in a rural area who could be reached and who wanted electric service. More than three-fourths of all consumers on REA-financed cooperative lines were farms. But also included were many thousands of rural nonfarm dwellings, schools, churches, stores, community buildings, and similar facilities. REA borrowers also served thousands of rural industries and other commercial enterprises. Many of these rural industries themselves were operating on a cooperative plan.

By April 1, 1952, REA had advanced \$1,995,931,338 in loans to its borrowers.² Under REA loan contracts, advances are made

1 Loc. Cit.

2 Ibid., p. 4.

as the borrowers need funds with which to pay for construction under way or completed. The difference between the amount of loans approved and the amount of funds advanced represents loan funds that are obligated to borrowers. Most of it has been further obligated by the borrowers to pay for materials or contract services and will be advanced as construction proceeds.

By January 1, 1952, the borrowers had returned to the Government approximately \$325,000,000 in principal and interest payments on their REA loans. This included more than \$41,000,000 in payments on principal ahead of schedule. Less than \$660,000 was reported more than 30 days overdue.¹ Only one REA loan foreclosure has been necessary to date on an operating power system; it was on a loan that had been made to a commercial power company.

REA has made more than 95 per cent of its loans to cooperatives organized under State laws by rural people seeking electric service. These groups, which make up about 92 per cent of all REA borrowers, are local independent private business enterprises. They are controlled by their consumer-members through boards of directors elected annually by and from the membership.

Advantages Of Rural Electric Cooperatives

Rural electric cooperatives have proved the most effective instruments for carrying out the REA program because of their

1 Ibid., p. 4.

advantages as a method of making reasonable cost electric service available to farmers in rural areas. These advantages include:

1. REA-financed cooperatives operate on a nonprofit basis. This enables them to provide electric service at cost to their members.
2. Directors of REA-financed cooperatives are elected because of their known interest in making electric service available to rural people at reasonable rates. They serve without compensation and keep operating expense at the lowest possible level consistent with good service.
3. Members of REA-financed cooperatives also are interested in keeping costs at a minimum. For example, they help reduce operating expense by voluntarily reporting potential causes of service interruptions such as tree limbs touching the lines. Most of them read their own meters, and many make out their own bills.
4. Previous experience of farmers with other types of cooperatives helps them to organize and operate rural electric cooperatives on a sound basis with a minimum of effort and expense.

Area Coverage

Lines constructed by REA borrowers are built to serve entire

areas, including less densely settled sections as well as those of greater population. This is known as "area coverage." The test is no longer whether an individual line or section will be self-supporting, but whether the entire system as a whole is feasible. This policy has become increasingly important as the rural electrification job has progressed. Only through area coverage can electric service be extended to many of the more isolated farms, and to groups which are remotely situated in "pocketed" areas far removed from any established source of power.

Importance Of Rural Electricity

In every region in the United States, rural electric co-operatives have demonstrated that farm electrification, far from constituting an additional cash drain on low farm incomes, actually brings about a higher real farm income and better living. Furthermore, electricity now has become a vital factor in modern farming. It is a recognized fact that the farm is a factory as well as a home, and electricity is a resource on which farmers are coming to depend more and more as a production tool. This is a particularly significant fact during this period of national mobilization, with our agricultural production goals calling for the highest level of farm production in our history.

Several factors lie behind these high production goals--our military needs, our growing population, our depleted reserves of food and feed, our efforts to help our friends in all parts of the world--and, of course, our rising standards of living.

In the face of all this, the United States faces not only a serious shortage of power in some areas, but an acute shortage of farm labor generally. Unquestionably, efficient use of electric power on the farmstead presents one of the greatest and best potentials we have for producing food in needed quantities. To date, about 400 farm uses for electricity are known, at least 250 of them productive uses. And not only does electric power on the farm help in the essential job of meeting production goals, but it can and does pay its way with handsome profits for the farmer.

Another important result of the expanding rural electrification program is the increased business it brings into rural communities. It stimulates private business, both locally and nationally. Surveys indicate that for every dollar invested in rural power facilities, the farmer invests an additional \$4.50¹ in wiring, plumbing, and electrical appliances. And when low-cost power is available, the establishment of new local enterprises is encouraged. Furthermore, electric power attracts to rural areas, factories, defense installations and other power consumers that are directly a part of our mobilization effort.

¹ Ibid., p. 7.

THE REA IN KANSAS

Growth Of The REA In Kansas

Once again the spirit of determination, inherited by Kansas farm folk from the hardy pioneers, has been demonstrated. This time the development of rural electrification has been the idealistic dream brought to reality by the relentless efforts of Kansas farmers to improve their homes and working conditions.

Much credit can be given research and to recent developments of rural line construction and engineering, but it remained for the farmers themselves to take the initiative to provide the means for what may be termed one of the greatest achievements by the farm people of our great state. With the founding of the Rural Electrification Administration in 1935, which made loans to farm people to build electric lines possible, Kansas farmers immediately began thinking of rural electrification in terms of possible realization.

Meetings were held by interested groups in country schoolhouses to determine ways and means of bringing "light" to the rural areas. Endless hours were spent by farm men and women conducting surveys to determine the relative density of the area in which their farms were located. When this survey showed the number of units required by the Rural Electrification Administration for loans to build electric lines to be sufficient, that information was cause for much exultation among the farm folk.

The cost of these electric lines was to be amortized over a period of twenty, twenty-five, or thirty-five years. The basis of retirement for these loans was determined by a percentage of the entire income from the area to be serviced.

When this had been determined, the next step was to form the Rural Electric Cooperatives into actual functioning units. The business of incorporation, securing a charter, electing a board of directors, securing personnel and letting contracts for construction completed the initial steps necessary for organization. When these objectives had been reached, it proved to be another high light which the farmers of Kansas could look upon with justifiable pride.

The speed with which the farmers completed these cooperative organizations is shown by the increase in the number of farms served. From a standing, flat-footed start in 1937, 46.3 per cent of the farms in the state in 1947 using electricity were being supplied by these cooperatives. During the year 1947, 11,416 farms were connected to the lines of municipal and private utilities and the farm cooperatives. This was almost as many as the total number of farms receiving service in the entire state at the end of 1937. In the intervening ten years, 52,133 farms were added by the three utility groups, so that at the end of 1947 there was a total of 64,943 farms enjoying central station electric service. Approximately 15,000 farms were connected during 1948, bringing the number of farms in the state

receiving electric service to fifty-five per cent.¹

Thirty-six Rural Farm Cooperatives operating in the state had, as of July 31, 1948, been granted government loans of \$47,843,000 with which to build their systems. By 1947, only eleven states had received loans greater than Kansas, and only seven states had received more than \$50,000,000 each. Kansas cooperatives had an average density of two customers served per² mile. The average for the United States was three per mile.

In form of a loan from REA, funds are furnished to cooperative organizations, at a low rate of interest, in amount sufficient to finance distribution line construction in its entirety.

Rates were so designed that the difference between wholesale and retail cost of electrical energy was sufficient to cover cost of operations, maintain line repair and pay interest on and amortize the loan. When the loan is paid off, the lines will belong to the communities which they serve. There is no mortgage on anyone's farm or home. REA holds the transmission line as its only security.

The form of cooperative may differ throughout the United States according to state regulations affecting rural electrification cooperatives. For example, in some states an REA project included a definite territorial district. The board of

1 Thirty-Sixth Biennial Report of the Kansas State Board of Agriculture, Vol. XLI. Topeka; Kansas State Printing Plant, 1948, p. 110.

2 Thirty-Sixth Biennial Report of the Kansas State Board of Agriculture, Op. Cit., p. 110-111.

trustees or directors, who constituted the administrative body, gained their office through a general election of citizens in the district. Qualifications of board members in this type of setup did not confine eligibility to those who were to receive service from the cooperative. In this respect, such REA projects might not be called true cooperatives.

In the state of Kansas each service connection must be represented by one membership which is in reality a share of stock in the corporation. The amount of this share of capital stock or membership fee was five dollars. The board of directors were elected with the approval of REA, employed a superintendent or manager who was charged with the responsibility of general management and employment of all other members of the operating force.

Project feasibility was based on the number of members per mile to be served and the minimum amount they agreed to pay per month. Original requirements in Kansas were three members per mile, paying minimums of \$3.50 per month, with rates of which the following schedule is typical.

Minimum \$3.50 per month, allowing 40 kwh
 Next, 40 kwh @ $5\frac{1}{2}\text{¢}$ per kwh
 Next, 120 kwh @ 3¢ per kwh 1
 All over, 200 kwh @ $13\frac{1}{4}\text{¢}$ per kwh

However, because of the difficulties met in the introduction of rural electrification, due to rural people in general not re-

1 Thirty-Second Biennial Report of the Kansas State Board of Agriculture, Vol. XXXVII. Topeka; Kansas State Printing Plant, 1940, p. 135.

alizing or appreciating its value, more lenient requirements had to be accepted until after sufficient interest had developed. Later it was also realized that density of population alone was not a fair basis for feasibility because it eliminated those who lived in sparsely settled territory but yet who would be willing and could afford to pay higher minimum amounts which would be sufficient to justify line construction even though population was sparse.

Consequently, a system of development was worked out where feasibility was based on dollars of guaranteed revenue per month per mile. The amount was \$8.50 to \$10, depending on population and estimate of construction cost. This guaranteed revenue was representative of an average for the entire project and not necessarily applicable to individual miles.

No funds are available from REA prior to approval of an area for rural electrification. Therefore, development of a new project, or supplement to an existing system, invariably represents considerable sacrifice on the part of one or more persons who possess sufficient interest and public spirit to spend the time, effort, and finance necessary to promote development. First, applications for service must be solicited. Each application must be accompanied by a share of stock or a membership fee of five dollars. Each applicant, if he is the owner of the premises where service is to be rendered, must also assign to the cooperative the right to enter upon and construct transmission lines on his property. No funds are furnished by

REA for the purchase of rights of way. Development is supervised and approval made by the examining division of the Rural Electrification Administration. Development procedure may change from time to time to conform to whatever may be found justifiable through actual experience. When sufficient applications have been obtained to meet current requirements specified by the examining division, an engineering firm is employed to prepare maps and tabulation descriptive of the proposed project. These are submitted to the examining division for their approval. With approval of the project an allocation is made sufficient in amount to cover all administrative, legal and construction costs. Next comes the organizing of the cooperative body which necessitates the employment of an attorney to conform such organization with the dictates of state regulatory bodies. Expense of incorporation is not chargeable to the allocation made by REA and consequently must be met out of the capital stock fund. When the officers are elected they employ a superintendent who coordinates all activity, namely, securing a wholesale power source and engineering, construction and energization of the electrical distribution lines.

In 1935 when the Rural Electrification Administration was created, there were only 13,700 Kansas farms served by central station service, according to the 34th Biennial Report of the Kansas State Board of Agriculture. That was about one farm in ten. Far from being near the lowest of all states not electrified, Kansas now ranks 26th in percentage of farms served,

or to be exact, 88.3 per cent.¹ This record was made during 14 years, of which about five years were dormant because of World War II taking critical materials.

It constituted one of the greatest construction records of its kind, all done by the initiative of Kansas farmers who got electric service when no one else offered it to them on fair and reasonable terms. There was no where else that you could find as good a record of achievement--of individual enterprise breaking the hold of monopoly and regulation down to where the farmer could have the finest of electric service.

Considering the 37 Kansas REA-financed electric cooperatives as one group, application of the cooperative principles of organization has resulted in Kansas farmers building the state's third largest electric distribution system. Exceeded only by the Kansas Gas and Electric, with headquarters in Wichita, and the Kansas Power and Light, centering at Topeka, the farmer-owned cooperative systems have forged ahead until now they represent 93,594 consumers on 51,673 miles of lines, with an investment of 82,904,351 dollars.² Approximately 400 farmer directors gave of their time and personal efforts without compensation to see to it that these farmer-owned electric systems were operated efficiently and reflect sound business management practices.

The average monthly farm consumption on REA-financed lines in Kansas increased from 60 kilowatt-hours in December 1941, to

1 Kansas Electric Farmer, March 1953, p. 8.

2 Kansas Electric Farmer, August 1952, p. 10.

156 kilowatt-hours in December 1950.¹ In the same period the national average went from 61 kwh to 161 kwh per farm. This increase reflects greater use of electrical equipment to save time and labor in performing farm and household tasks to meet production goals and help bring about a more comfortable way of rural living.

An important phase of rural electric development has been the decrease in the cost of service to the customer and in the simplification of line extension plans and rate schedules. During the period from 1925 to 1930, practically all schedules for rural service were complicated and difficult for the farm customer to understand. The customer in many instances withstood much if not all of the line construction cost. Most rates included a transformer or service charge in addition to the price paid for energy used. Energy rates varied all the way from seven cents per kwh to fifteen cents per kwh depending upon the relative proportion of the cost included in the so-called service charge. The net result of these schedules was that in 1924 the first 50 kwh cost a customer from \$6.00 to \$7.50 and for the first 100 kwh cost from \$10.50 to \$15.00.²

During the early 30's the service charge was removed from most of these rate schedules; energy rates were lowered, while at the same time the proportion of the line extension cost paid

1 U.S.D.A. Mimeograph Report, Op. Cit., p. 8.

2 Thirty-Fourth Biennial Report of the Kansas State Board of Agriculture, Vol. XXXIX. Topeka; Kansas State Printing Plant, 1944, p. 78.

by the customer was reduced, if not entirely eliminated. At this period in the development of rural electrification, the cost of the first 50 kwh was from \$5 to \$6; for first 100 kwh used per month \$10. The second 100 kwh used, cost \$3.25 or a total of \$13.25 for 200 kwhrs. In 1943, electric service was available to farm customers by cooperatives and by utility companies at a cost of from \$4.80 to \$6 for the first 100 kwhrs. with a cost for the next 100 kwhrs. of approximately \$3.00 or a total of from \$7.65 to \$9 for 200 kwhrs. used per month. These costs were approximately forty per cent of the cost of equivalent quantities of electricity in 1924.¹ At the present time, electricity is available to farm customers at roughly \$7.20 per 200 kwhrs.

There can be some further simplification of rate schedules, but the greatest opportunity for still lower unit costs lies in the further application of electricity to additional operations on the farm and in the farm home.

According to figures released by the Rural Electrification Administration, 84.6 per cent of Kansas farms were electrified as of June 30, 1951. This percentage was adjusted to reflect the preliminary figures of the 1950 U. S. Census. According to figures of the Kansas State Corporation Commission, the year 1951 showed 56.7 per cent of the total rural electric consumers served by the REA-financed systems, 38.3 per cent served by com-

1 Thirty-Fourth Biennial Report of the Kansas State Board of Agriculture, Vol. XXXIX. Topeka; Kansas State Printing Plant, 1944, p. 78.

mercial utilities and 5.0 per cent served by city owned utilities.¹

Another set of interesting statistics on the size and scope of rural electrification in Kansas are the percentages of electrified farms served by the three major groupings. According to the Kansas Corporation Commission reports for 1951, the farmer cooperatives served 63.9 per cent of the electrified farms, private utilities 30.4 per cent, and the city-owned utilities 5.7 per cent.²

City-owned utilities supplied 6,973 of the rural customers in Kansas, including approximately 6,235 rural farm customers, 437 rural non-farm customers and 269 rural commercial customers. (Rural farm customers are those who farm any tract of land of three or more acres used mostly to produce agricultural products or any tract of three acres or less where the owner or tenant devotes his entire time thereon to agriculture.) Ninety-three city-owned utilities reported farm or rural customers in 1951. Thirty city-owned electric systems reported no rural customers and 22 reported either wholesale or standby customers. Seven cities reported rural electrification associations as wholesale customers as of June 1.

The city-owned transmission lines in rural areas averaged 4.0 customers per mile in 1951. These rural customers used an average of 2,444.1 kilowatt hours per year for which they paid

1 Kansas Electric Farmer, August 1952, p. 10.

2 Loc. Cit.

an average of 4.2 cents per kilowatt hour. In 1950 the average rural customers used 1,557.3 kilowatt hours at a cost of 3.6 cents per kilowatt hour. City-owned utilities reported approximately 1,703 miles of transmission lines in use in 1951. The total number of kilowatt hours sold in 1951 was 16,964,825 which does not include wholesale or standby service, with receipts amounting to more than \$718,354¹ for the rural service.

The total number of electrified farms in Kansas showed an increase of 6,010 in 1951, when 110,541 were reported compared with 104,531 in 1950. The total number of rural customers showed an increase of 9,702 in 1951, when 138,367 customers were reported compared with 128,665 in 1950. Rural electric cooperatives served 70,665 electrified farms in 1951, an increase of 6,338. Privately-owned utilities supplied 33,641 farms with electricity and city-owned utilities supplied 6,235. Of the 131,394 farms in Kansas 84.1 per cent were electrified, compared with 79.7 per cent in 1950.²

The latest REA debt-service summary, covering all transactions to January 1, 1952, showed that the Kansas borrowers had paid \$6,582,840 in principal and interest on their Government loans. This included \$713,046 paid on principal in advance of the date due. Twenty-three borrowers were ahead on their payments and none were behind.³

1 "Electricity To 84 Per Cent of Kansas Farms", Kansas Government Journal, August 1952, p. 469.

2 Loc. Cit.

3 U.S.D.A. Mimeograph Report, Op. Cit., p. 8.

First Energized REA Cooperative In Kansas

The first REA loan in Kansas was approved in November 1936, and the first REA-financed line placed in operation on April 1, 1938 by the Brown-Atchison Electric Co-op of Horton, Kansas.

The superintendent of utilities in Horton in 1950 was Willard L. Phiffer, who was a pioneer in the field of rural electricity. In 1931 he was employed by the Iowa-Nebraska Light and Power Company, and worked out of the concern's general offices in Lincoln, Nebraska, covering the Nebraska territory in the interests of rural electrification. At the time of the depression he was placed in the operating department, and was sent to Friend, Nebraska as superintendent of that property, and in 1935 he was transferred to Newman Grove, Nebraska, also as superintendent. When rural electrification began to boom again, he became rural advisor of the company's lines in Iowa and northern Missouri, remaining in that capacity until 1938, when he returned to Horton as resident engineer for an engineering firm on the REA project there and at Troy.

Mr. Phiffer credits the late Harve L. Lingo, former superintendent of utilities, and Col. Charles H. Browne, publisher of the Horton Headlight, with the leadership that resulted in rural families in that area seeing the practicality and desirability of electricity on their farms, thus paving the way for the establishment of the first Rural Electrification Administration project in Kansas in 1937.

The City of Horton owned seven miles of rural line which served eight customers in 1935, and two years later as farmers became more electrical minded, there were eight and a half miles of lines serving 19 customers.¹ The original lines were owned by the City of Willis and were later purchased by the City of Horton. The lines were financed by the Horton electrical department, and no charge was made to rural consumers for lines.

Ceremonies marking the setting of the first REA pole in Kansas were held November 10, 1937, and another celebration was held April 1, 1938, as the first unit of 80 miles of the Brown-Atchison REA Cooperative, serving 80 customers was energized with current from the Horton generating plant.² Governor Walter A. Huxman was the principal speaker at the latter ceremony. The Brown-Atchison Cooperative, by the latest figures available (1951), had 1,043 miles of energized line serving 2,624 customers, or 2,490 farms with average monthly consumption of 240 kwhrs.³

On May 27, 1938, a contract was let for 132 miles of line for the Doniphan REA Cooperative, and the first section was energized December 23, 1938, with 158 consumers. This REA project also received its electricity from the Horton plant, being billed by the Brown-Atchison Cooperative for the current consumed. In 1951, the Doniphan Cooperative, which had its offices in Troy had 392 miles of energized line serving 1,068 customers, or 1,000 farms with an average monthly consumption of 173 kwhrs.⁴

1 Kansas Government Journal, May 1946, p. 15.

2 Loc. Cit.

3 Kansas Government Journal, August 1952, p. 470.

4 Loc. Cit.

Influence Of The REA On A Kansas Community

How does the REA influence a Kansas community? The following story answers that question very effectively:

Some years ago the late Senator Arthur Capper of Kansas sent a telegram to Herbert Harrod, a farmer living outside Leavenworth. The local telegraph office telephoned the message to Harrod.

Presently Harrod's neighbors--some of whom just happened to pick up the phone on the party line--began dropping in on him.

'Herb', they said, 'what's this about you getting \$65,000 from Washington?'

'It's \$265,000', he said. 'I guess you didn't hear straight. Capper says our REA loan has been approved.'

Herb Harrod had been working on the idea for a long time. He organized the first meeting in the white clapboard schoolhouse at Edmonds Corners and spent his spare time driving around the county talking with farmers.

'It was hard getting people to sign up', he says. 'They were juberous at first.' (He explained that "juberous" is the local pronunciation of dubious.)

'They all said they'd sign once the power was in. Each one wanted to wait and see how it worked out for somebody else.

'Of course, you couldn't do things that way. The REA said we would have to have at least three users per mile on the line before they would consider a loan.'

Sometimes Harrod himself put up the \$5 fee required of each signer.

'Every time we signed up a farmer, we'd put a white-painted stake out beside the road,' he recalls. 'People got to wondering what the stakes meant, and they would ask, and that was one way of spreading the idea. Then, too, everybody could see just who had signed up--and people kind of like to keep up with other people.'

Eventually he had 154 signatures. He went to REA's St. Louis office, "pounded the table some," and finally the

first loan came through. The Leavenworth-Jefferson Electric Cooperative began serving the farmers in 1945 with 250 miles of line. It has 912 miles now.

'It sure revolutionized things on the farm,' says Herb Harrod.

'Of course, the women usually have the first say about things, so they got lights and kitchen ranges into the house first.'

'But there were just about as many milk coolers in the barns. They then began getting radios and refrigerators.'

He looked up the street toward a shed where a chanting auctioneer was conducting the usual Saturday afternoon sale of livestock.

'The main thing is,' he said, 'it put us right in town. We can have just as good living conditions as they have.'

Harrod was one of the original trustees of this co-op. He is still on the board of nine, chosen so that they represent the whole territory.

The government has loaned this group \$1,585,000. It has been repaying the money and is \$71,250 ahead of schedule.

It now serves 2,185 farms--in the neighborhood of 10,000 persons--in a service area that runs about 45 miles east-west and 30 miles north-south.

The farms used an average of more than 200 kilowatt hours a month in January and February. (You use an average of 15 per month for your radio, 35 for your refrigerator and 125 if you have an electric range.)

The members read their own meters and make out their own bills. That saves office overhead. Since they own the co-op, there is no point in making false reports, and the manager says they don't.

In taxes last year the co-op paid five counties \$10,890.89.¹

1 Salina Journal, April 12, 1953, p. 27.

Where Kansas REA Co-ops Buy Their Power

Most of our Kansas rural electric systems depended on private utilities for their source of power. Most cooperatives had no desire to take on the problems of generating and transmission of power, so long as they could get an adequate supply at a reasonable price that the members could afford to pay. However, they felt that it was only good business to have the right to generate and transmit power, and therefore, they wanted to retain that right as a matter of establishing sound American principles for getting adequate power at a price the farmers of Kansas can afford to pay.

It is interesting to note where the various electric cooperatives in Kansas buy their power. According to the information received from Mr. Joe Jenness, executive secretary of the Kansas Electric Cooperatives, the Kansas Electric Cooperatives received their power from the following sources:

- A. Four Co-ops made their own power. Those Co-ops have their headquarters in Cedarvale, Great Bend, Ulysses, and Scott City.
- B. Kansas Power and Light supplied fourteen Co-ops with power.
- C. Western Light & Telephone supplied eleven Co-ops.
- D. Kansas Gas and Electric supplied six Co-ops.
- E. Central Kansas Power supplied five Co-ops.
- F. Although the trend is moving away from municipal

power plants supplying Co-ops with power, five Co-ops received power from the cities of Goodland, Wellington, Lindsborg, Beloit, and Iola.

Increase And Improvement Of Appliances

Success of rural electrification in Kansas by the farmers themselves is bringing to Kansas communities modern office and warehouse facilities, jobs for office workers and linemen, and creating a three hundred million dollar market for electrical appliances. That figure of three hundred million dollars for Kansas alone may seem fantastic, but it was based on a number of surveys which indicated that for every one dollar invested in rural distribution lines, the farm consumer invested four to five dollars in wiring and appliances.¹ Now that electricity is available, farmers first electrified their homes with modern lighting, home freezers and refrigerators, washers, ironers, and similar appliances. Some have installed electric heat pumps that cool in summer and heat the home in winter by an ingenious interchange of heat units with the ground water.

It is apparent today that Grade A dairy production cannot be undertaken successfully without the use of electricity. Most of Kansas milk is produced from small herds because hand milking limits the number of cows that can be taken care of by one man.

1 Kansas Electric Farmer, August 1952, p. 10.

Electric milking machines have made it possible for the same amount of labor to triple the size of the dairy herds. Electricity enters into every phase of the producing of better foods from the farm. Electricity is needed for artificial insemination. Without electricity there could be no grain drying and curing of hay which makes it possible to produce a better product for less cost.

The development of improved appliances is a factor contributing to progress of rural electrification. In 1924, the Engineering Experiment Station staff of Kansas State College published a report of a survey. In this survey they reported, "A practical, reliable, and economical electric refrigerator will be welcomed by rural electrical users. At present there is a lack of confidence in the practicability of such equipment." That was almost thirty years ago and grounds for the statement was well substantiated. There is no longer a lack of confidence as to the reliability, economy or practicability of such equipment. There is need of further adaptations of electric refrigeration to farm requirements. Most manufacturers of refrigeration appliances are taking into consideration the needs of the farmers and foresee a valuable market in rural homes.

For another illustration of the progress in equipment the same investigation showed that in 1927 a milking machine required as much as twenty kwhrs. per cow per month. Modern milking machines now require from ten to fifteen per cent of that amount, two to three kwhrs. per cow per month. One other example--elec-

tric brooders in 1927 were expensive to operate and of questionable reliability. Today this device is almost universally accepted as the preferred equipment on farms having electric service.

It is very interesting to know the many things a farmer will use electricity for and what the amount used will be.

Brooder	$\frac{1}{2}$ kwh per chick raised
Churn	$1\frac{1}{2}$ kwh per 100 pounds of butter
Clipper (horse or cow).	$1/10$ kwh per hour of use
Concrete mixer.	$\frac{1}{2}$ kwh per cubic yard of concrete
Cream separator	$\frac{1}{2}$ kwh per 1,000 pounds of milk
Ensilage cutter	1 kwh per ton
Electric fence	7 kwh per month
Fly screen or trap	5 kwh per month
Grain elevator	4 kwh per 1,000 bu.
Grain grinder	$\frac{1}{2}$ kwh per 100 bu.
Grain seed cleaner & grader	1 kwh per 100 bu.
Hay baler	$2\frac{1}{2}$ kwh per ton
Hay hoist	$1/3$ kwh per ton
Incubator	1 kwh per 25 eggs set
Milking machine	$1\frac{1}{2}$ kwh per cow per month
Paint sprayer	$1\frac{1}{2}$ kwh per 1,000 sq. ft.
Poultry house lights.	5 kwh per 100 birds per mo.
Poultry water heater.	1 kwh per day of use
Sheep shearer	2 kwh to shear 100 sheep
Tool grinder	$\frac{1}{2}$ kwh per hour use
Utility motor $\frac{1}{4}$ h.p.	$\frac{1}{2}$ kwh per hour use
Water pump (shallow well)	15 kwh per month
Water pump (deep well).	20 kwh per month
Wood saw	2 kwh per cord of wood ¹

So great was the increased consumption of power on Kansas farms it was forcing additional generation capacity to be installed. In many places throughout Kansas during the record breaking wheat harvest of 1952, power outages occurred when grain elevators operated during peak power periods and motors burned out because of low voltages. The extra demands of harvest revealed

1 Thirty-second Biennial Report, Op. Cit., p. 136-37.

that power reserves throughout the state were very low, and that additional power sources were necessary if increased use of electricity was to be had by Kansans.

Practical Used For Electricity On The Farm

The real test of rural electrification is the use of electricity on the farm and benefits resulting from its use. More research has been done in this field than any other part of rural electrification. The problem has been to find out what needs to be done on the farm and then to supply the equipment to get the job done. In this connection we must give credit to the electrical equipment industry which has been ever ready to build any new equipment which was needed.

The appliances listed below were among those which were often the first to be installed and used on Kansas farms, but there were many more appliances which were being used extensively:¹

Lighting	Washing machine and
Radio	laundry
Small household appliances:	Water pumping
Flat iron, fans, vacuum	Electric cooking
cleaner, toaster, etc.	Milk cooling
Refrigeration	Feed grinding
	Electric brooding

The primary use for electricity on the farm was for lights in the home, the farmyard, and farm buildings. In addition to the great convenience afforded by electric lights, the health of

1 Ibid., p. 129

the farm family and attractiveness of farm life could be greatly improved. Good lighting reduces eye strain, promotes safety from fire and accidents, and increases the efficiency of labor and the enjoyment of leisure.

Next to lighting, the radio was the most used appliance operated by electricity. Nearly every farm with high-line current had a radio. Most farm homes had some small household appliances, of which the flat iron was the most common. The household refrigerator has been perfected and improved to the point where it is a most practical and efficient piece of home equipment. The first cost has been reduced as volume of sales increased until this equipment can be owned by many farm families. The refrigerator is of greater practical value for the farm home than for the city home. Families in the city have access to the neighborhood store for frequent food purchases, which makes it unnecessary to store large quantities of food. Less frequent purchases of food are possible on the farm and, moreover, the cooling and preservation of farm produce makes a definite need for refrigeration. Cooling milk by electrical refrigeration is the most practical method for the production of high quality milk. Most dairy farms find many uses for electric service. Present-day home refrigerators can be operated for \$1.50 to \$2.50 per month during the summer months, which is much less than the cost of ice.

The recent growth of cold storage lockers for frozen foods will encourage rather than retard the use of household refrigerators on the farm. Produce may be held in the home box before

taken to the freezer and it may also be kept for longer periods before consuming after it has been taken from the community freezer.

Electricity is a most satisfactory source of power for pumping the farm water supply. Pressure pumps directly connected to the motor controlled automatically by the water pressure are efficient and reliable. The electric water system not only eliminates hand pumping and carrying of water for drinking and kitchen uses, but it also makes possible the use of complete laundry and bathroom facilities and a sewage disposal system. On farms where plenty of water is available, the system is used for cooling the home and irrigating the garden and yard.

A bulletin published in 1925 expressed doubts as to the practicability of the electric range for the farm home. At present the range is being used so successfully in so many farm homes that all doubt as to practicability has vanished. The farm housewife has been as quick as others to recognize the advantages of eliminating the dust, dirt and ashes connected with a coal or wood range. Its cool operation for hot summer weather has also been a great advantage. Cooking uses large quantities of electric energy and most companies grant a special lower rate for cooking service. Twenty-five to 40 kwhrs. per person per month is the approximate amount of energy consumed when all meals are prepared on the electric range.

The statement has frequently been made that if all farm homes would install and use electric ranges, the problems of elec-

trification would be solved. It would then be practicable to build lines to serve all the farms in the eastern half of the state. Electricity is a cheap source of power. Ten cents worth of electricity at 3 cents per kwh will do any one of the following:¹

1. Pump 1,200 gallons of water for the home.
2. Wash the clothes for a family of five for three weeks.
3. Operate a household refrigerator for two days.
4. Operate a 75-watt lamp for 44 hours.
5. Milk twenty cows for three days.
6. Grind 600 bushels of shelled corn.
7. Cool forty gallons of milk.
8. Hoist ten tons of hay into the barn loft.
9. Elevate 1,000 bushels of wheat into a bin.
10. Operate the radio for about one month.

Helping Kansas Industry

Today rural electrification is big business in Kansas. Besides serving the largest number of farms, these systems are increasing the industrial development of our state. Scores of oil fields are now pumped by REA power. The great pipelines are kept rust free by cathodic connections. And by way of an interesting sidelight, the Flint Hills Rural Electric Cooperative Association serves a new micro-wave tower to beam television from Kansas City towards Texas in the development of a change of broadcasting points.

Once Kansas television stations are on the air, it will be only a matter of months before most Kansas farms will enjoy TV--

1 Ibid., p. 133

thanks to the availability of rural power. Just think how long it might be for TV to cover Kansas if it were not for the almost complete electrification of the state by the farmers themselves. Although this great blessing of power farming is changing the farmers living standards, their farm methods, their tax base, perhaps making it more attractive for their young people to stay on the farm, still there are new problems arising to plague them.

Many farmers must find efficient ways to use this new cheap source of energy to replace hand labor, getting scarcer. To develop new and better ways of electrifying their farms, Kansas Co-ops are working through this state association to help the Engineering Department at Kansas State in its research. The Committee on Relation of Electricity to Agriculture has set up the machinery for them to help the 4-H Club movement, develop rural electrification projects, the Future Farmers of America to learn practical electrical work, and the researchers to prove how farmers can dry grains and grass for better feeds at less cost and waste of present methods.

REA Owned By Members

When considering the farmer cooperatives as a group, it should be kept in mind that actually they are 37 separately incorporated businesses, organized under the state laws of Kansas or Oklahoma and by act of the Kansas State Legislature deemed public utilities. They are owned by the members they serve but

are under control of the Kansas State Corporation Commission the same as any privately-owned investment utility.

REA Subject To Taxation

That private enterprise can apply principles of cooperation and successfully operate utility businesses once again proves that the American system of encouraging the individual has brought the blessing of electric power to the farm, increased rural living standards, and rural incomes.

Sometimes impressions have been publicized that these electric cooperatives do not pay taxes or escape a large part of the tax burden. Actually the 37 cooperative electric systems in Kansas are all assessed by the Kansas State Commission on Taxation and Revenue, and contribute their share of taxes similar to any other utility operating in the state.

In a study of the tax situation conducted by the electric cooperative state association, it was found that Kansas electric cooperatives were paying the highest tax rate of any state in the union in which a general rural electrification program operated. During the calendar year of 1950, Kansas farmers contributed 6.28 cents of every dollar paid for power to the taxing districts, money which went to operate the local government, schools, etc.. This rate was exceeded only in California where three systems operate and New Hampshire where one system operates. Nationally, farmers pay 1.67 cents out of every dollar paid for power in taxes,

so that the Kansas rate of taxing was almost four times the national average.¹ Instead of being tax-favored, Kansas systems were actually called on for greater amounts.

In Missouri, the electric systems were taxed .9 of a cent per dollar of revenue; in Oklahoma--1.76 cents; Arkansas--3.55 cents per dollar. Nebraska cooperatives paid 1.81 cents out of every dollar.² However, in spite of many handicaps, Kansas farmers have forged ahead to build an impressive system of rural electric power.

Problems Of The Future

The essential problem still remains, that of using enough current on each farm to justify building a line to serve that farm. The REA has embarked upon a large-scale attempt to build up the use of energy on its lines in order that the income would be sufficient to carry the project and retire the loans made to build the lines. The problem facing the REA cooperatives is identical to that which has confronted the power companies since the beginning. It is the problem of making the lines pay the investment and operation costs.

The continued extension of electric lines in the rural sections of Kansas which are not now served seems to depend upon the same three factors which have contributed so largely to the pro-

1 Kansas Electric Farmer, August 1952, p. 10.

2 Loc. Cit.

gress already made. These are the desire of the farmers for electric service, the willingness of the power companies or REA to build the lines, and the consumption of enough energy by the farms to pay for the cost of the service. The remaining farms which are without service are in rather sparse territory with a possible density of only 2.5 farms per mile. Since this is rather low density of farms per mile, each farm must use more than the minimum amount of current if the proposition is to be practical.

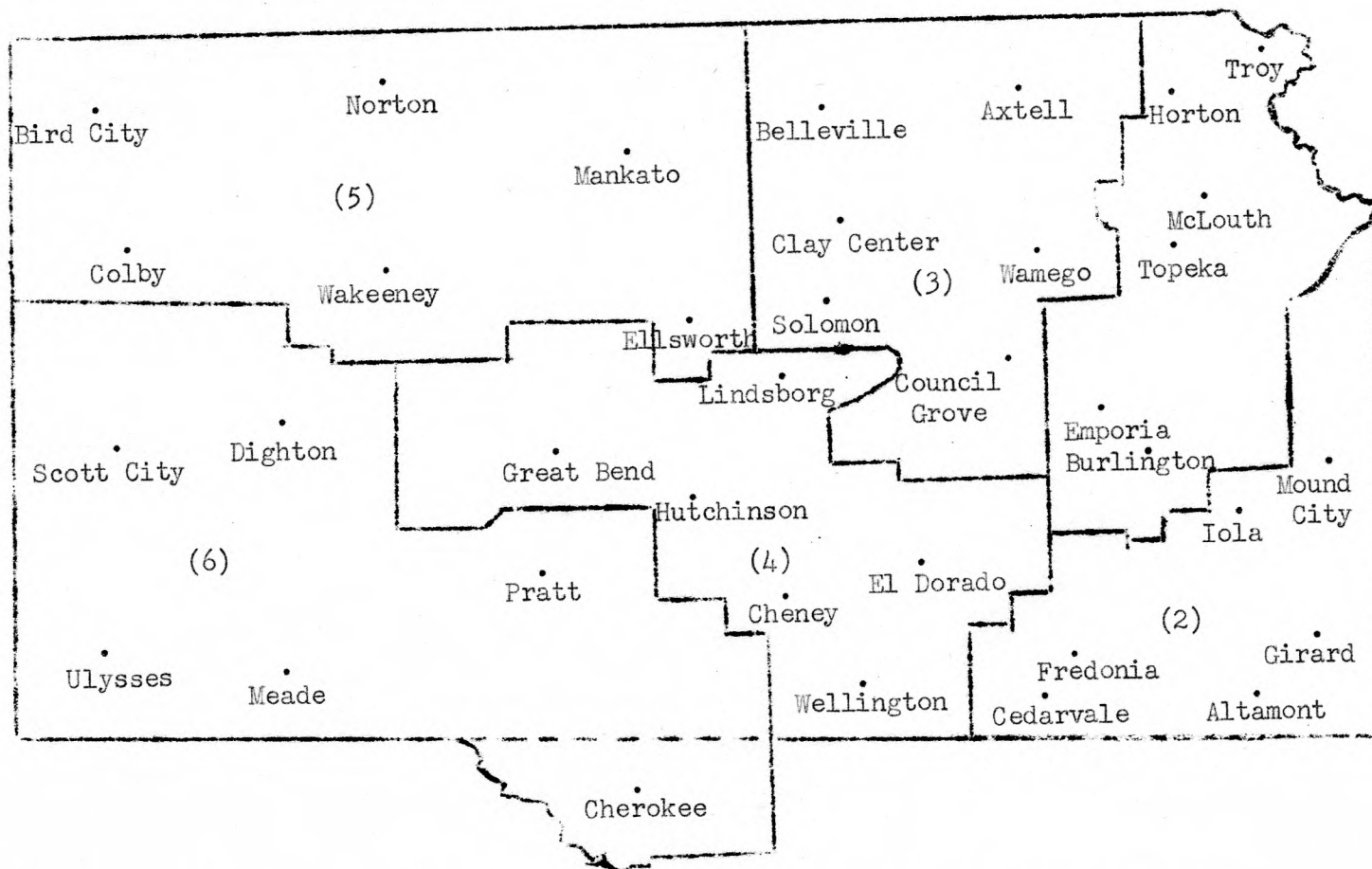
The movement to electrify the farms of the United States has gained such momentum that it seems likely to continue until a large part of the farms are supplied with current. The farmer and his family want the service. There are plenty of uses for current on the farm and equipment is available to use it. The future problem is to find a way to supply this service. Electricity can be used to increase the productive capacity of the farmer, and it should result in higher living standards and a more contented farm people.

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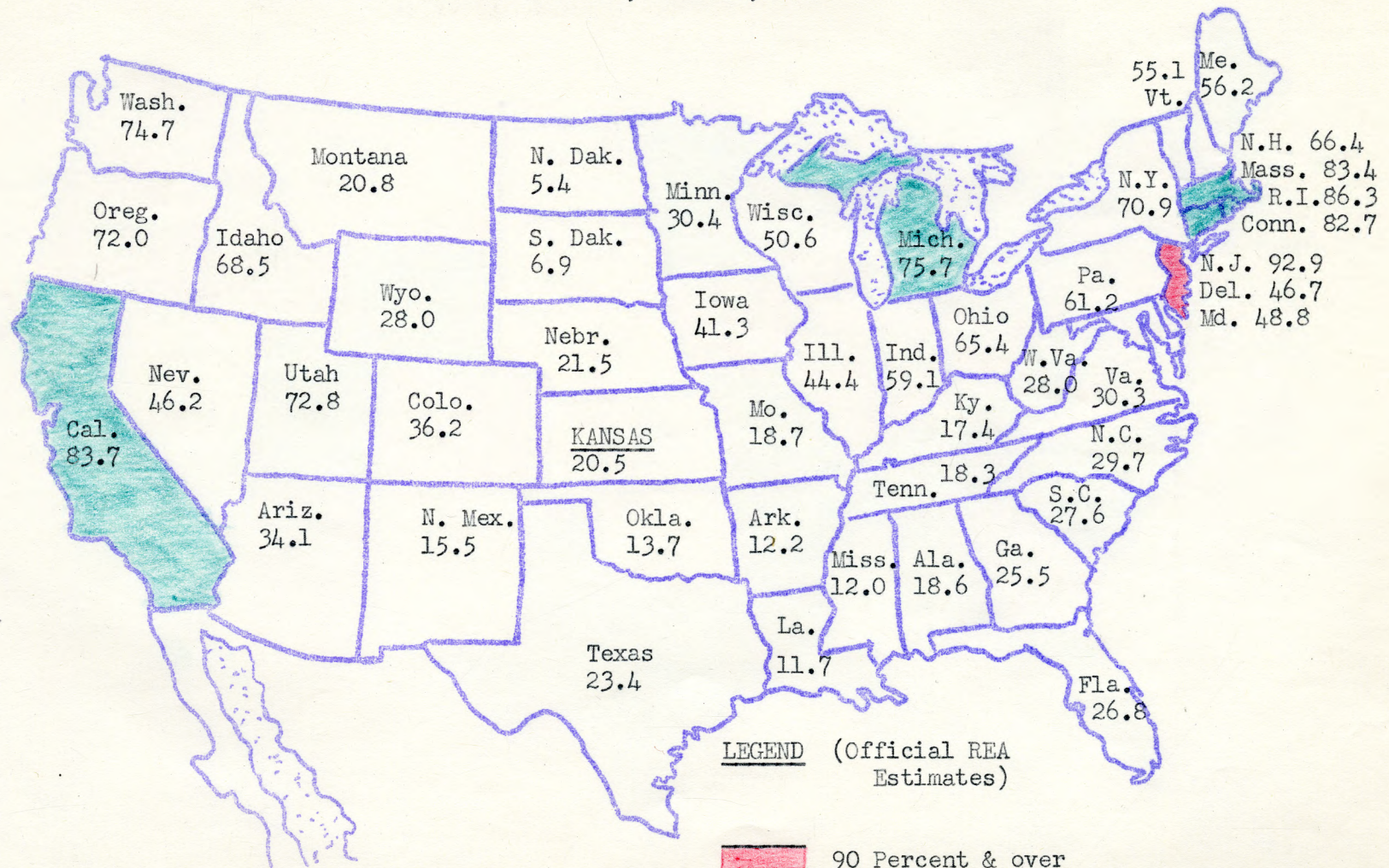
APPENDIX

HEADQUARTERS OF THE 36 REA COOPERATIVES IN KANSAS



Spread throughout Kansas are the headquarters of 36 farmer-owned rural electric distribution systems with a 37th located at Cherokee, Oklahoma. They have developed service to 93,594 consumers along 51,673 miles of lines, involving an investment of 82,904,351 dollars! Above is indicated the locations of the Kansas systems and the districts numbering 6 into which their state association is organized. Each district annually elects a director-trustee and a manager-trustee to represent it on the state board of "KEC"—Kansas Electric Cooperatives, Inc.

PERCENTAGE OF FARMS RECEIVING CENTRAL STATION
ELECTRIC SERVICE, JUNE 30, 1941



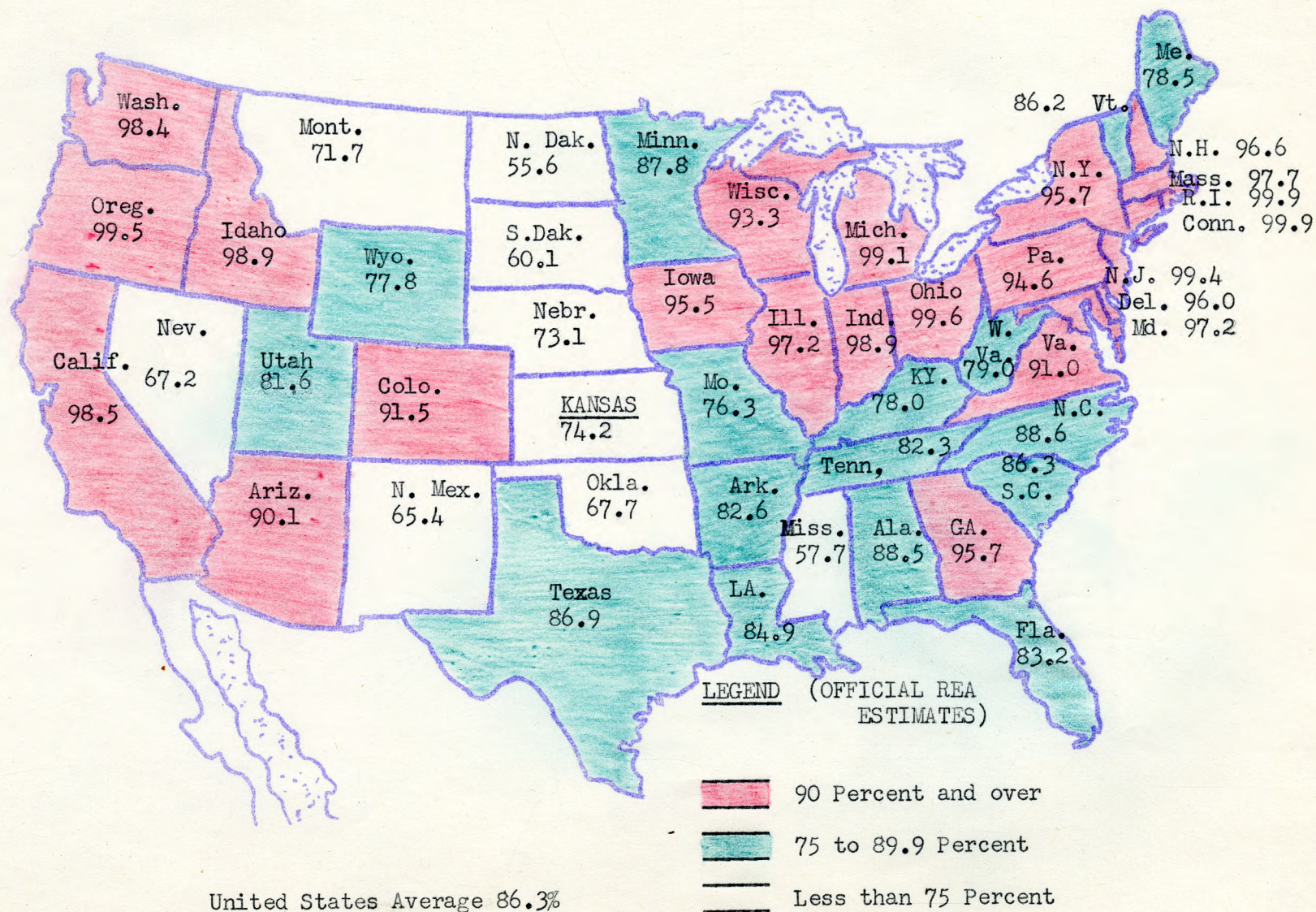
LEGEND (Official REA
Estimates)

- 90 Percent & over
- 75 to 89.9 Percent
- Less than 75 Percent

United States Average 34.9%

PERCENTAGE OF FARMS RECEIVING CENTRAL STATION

ELECTRIC SERVICE, June 30, 1950



LIBRARY OF CONGRESS
Washington, D. C.

RURAL ELECTRIFICATION ADMINISTRATION

Appropriations and Expenditures

<u>Fiscal Year</u>	<u>Appropriations</u>	<u>Loan Author-izations</u>	<u>Net Annual Budgetary Expenditures</u>
1936	\$15,900,160	\$ 13,928,288	\$ 1,424,960
1937	619,316	46,500,000	9,163,918
1938	32,110,105	30,000,000	14,988,074
1939	41,869,450	140,000,000	38,584,164
1940	43,390,000	40,000,000	37,881,078
1941	3,219,012	100,000,000	23,604,953
1942	3,773,865	100,000,000	8,573,160
1943	3,007,083	10,000,000	3,569,605
1944	22,553,125	20,000,000	4,733,906
1945	3,234,671	23,000,000	11,175,111
1946	4,335,516	300,000,000	11,201,247
1947	5,548,323	250,000,000	-21,947,444
1948*	5,000,000	400,000,000	238,930,447
1949*	5,450,000	400,000,000	304,542,113
1950*	7,012,326	525,000,000	293,460,538
1951	8,550,000	532,500,000	48,613,954 ^{1/}

^{1/} Through September 13, 1950.

* The appropriation acts for 1948-50 provided that money to be loaned could be borrowed from the Secretary of the Treasury. Previously the REA was authorized to borrow from RFC; or funds were provided by direct appropriation. The borrowed funds are shown as appropriations in the 1949 issue of the Combined Statement, although appropriated by language not differing essentially from that of 1948. The appropriation acts do not count these amounts in their totals. The very marked increase in expenditures in 1948-50 reflects changes in Federal accounting rather than in REA activities. Beginning with fiscal 1947, expenditures from checking accounts and borrowings from the Treasury are included in the total expenditures which are counted in determining the annual surplus or deficit. In previous years the checking account expenditures were considered part of trust account, not as part of general and special account expenditures. An effort to prepare a consistent series on expenditures, from 1936 through 1950, has been unsuccessful because the sources do not contain sufficient detail in many years.

Source: U. S. Treasury Combined Statement of Receipts, Expenditures and Balances (annual); and Daily Treasury Statement, Aug. 15, 1950.

1951 RURAL ELECTRIFICATION SURVEY¹
By The Kansas State Corporation Commission

Rural Electric Cooperatives

	Total Mi. Ru. Line Energ. Dec. 31, 1951	Total No. Rural Customers			No. Farms Served Dec. 31, 1951	Avg. KWH Con- sumption Per Mo. Per Farm
		As of Dec. 31, 1950	As of Dec. 31, 1951	Inc. Over 1950		
<u>COOPERATIVE</u>						
Alfalfa El. Coop. Inc.	346	524	536	12	456	183
Ark Valley El. Coop. Assn., Inc.	1,653	2,782	2,771	(11)	2,545	229
Brown-Atchison Electric Coop.	1,043	2,585	2,624	39	2,490	240
Butler Rural El. Coop. Assn.	1,113	1,861	2,127	266	1,951	151
Caney Valley El. Coop. Assn., Inc.	1,202	1,553	1,803	250	1,644	81
Central Kans. El. Coop. Assn. Inc.	1,940	3,057	3,274	217	2,477	194
C. M. S. El. Coop., Inc.	1,507	1,304	1,496	192	1,338	196
Coffey Co. Ru. E. Coop. Assn.	1,326	2,542	2,706	164	2,214	144
Cooperative El. Power & Light Co.	965	1,785	2,007	222	1,725	98
C & W Ru. El. Coop. Assn. Inc.	1,649	3,100	3,109	9	3,002	191
Doniphan Electric Coop. Assn. Inc.	392	1,037	1,068	31	1,000	173
D. S. & O. Ru. El. Coop. Assn. Inc.	1,646	3,290A	3,354	64	3,135	202
Flint Hills Ru. El. Coop. Assn. Inc.	2,164	3,852	3,919	67	3,428	184
Great Plains Electric Coop. Inc.	1,059	973	1,096	123	901	240
Jewell-Mitchell Coop. El. Co.	2,567	3,172	3,971	799	3,621	151
Kaw Valley El. Coop. Inc.	968	2,001	2,238	237	1,964	208
Lane-Scott Electric Coop. Inc.	1,007	275	1,032	757	820	172
Leavenworth-Jefferson El. Coop.	814	1,968	2,060	92	1,964	184
Lyon County El. Coop. Co., Inc.	865	1,738	1,795	57	1,623	148
Nemaha-Marshall El. Coop. Assn.	1,575	3,230	3,365	135	3,050	160
Ninnescah Ru. El. Coop. Assn.	1,802	2,076	2,189	113	2,103	195
N. C. K. Ru. El. Coop. Assn. Inc.	1,615	2,523	2,987	464	2,819	146
Northwest Ks. El. Coop. Assn. Inc.	1,397	1,270B	1,382	112	1,281	159
Norton-Decatur Coop. El. Co.	2,405	2,712	3,352	640	2,634	125
Pioneer Coop. Assn.	1,708	1,329	1,477	148	1,306	208
P. R. & W. El. Coop. Assn.	932	1,602	1,730	128	1,634	119

(Continued Next Page)

	Total Mi. Ru. Line Energ. Dec. 31, 1951	Total No. Rural Customers			No. Farms Served Dec. 31, 1951	Avg. KWH Con- sumption Per Mo. Per Farm
		As of Dec. 31, 1950	As of Dec. 31, 1951	Inc. Over 1950		
<u>COOPERATIVE</u>						
Radiant El. Coop. Inc.	967	1,613	1,880	267	1,768	86
Sedgwick Co. El. Coop. Assn., Inc. . .	691	1,369	1,394	25	1,314	234
Sekan El. Coop. Assn., Inc	1,553	3,581	3,651	70	3,247	118
Smoky Hill El. Coop. Assn.	1,150	1,264	1,476	212	1,321	165
Smoky Valley El. Coop. Assn.	342	593	611	18	587	125
Sugar Valley El. Coop. Assn.	640	1,262	1,314	52	1,263	93
Sumner-Cowley El. Coop. Assn	1,503	2,555	2,596	41	2,390	167
Twin Valley El. Coop. Assn.	778	1,600	1,663	63	1,585	101
Victory El. Coop. Assn., Inc	1,520	1,338	1,511	173	1,442	241
Western Coop. El. Assn., Inc	1,784	1,348	1,771	423	1,672	197
Wheatland El. Coop. Assn., Inc	978	499	1,089	590	951	146
Total	47,566	71,163	78,424	7,261	70,665	*

A Change from last year's report caused by exclusion of the City of Solomon in this report.

B Change from last year's report caused by inaccurate reporting in 1950.

* Weighted Average Farm Consumption for 1951 per month = 166.73

Numerical Average Farm Consumption for 1951 per month = 166.32

1 Kansas Government Journal, Op. Cit., August 1952, p. 470.

RURAL ELECTRIFICATION ADMINISTRATION LOAN AUTHORIZATIONS¹
1941 - 1951

<u>Law Number and Congress</u>	<u>Passed House</u>	<u>Passed Senate</u>	<u>Final</u>
Public Law 658, 76th Congress (H. R. 8202)	\$ 40,000,000	\$ 40,000,000	\$100,000,000
Public Law 674, 77th Congress (H. R. 6709)	10,000,000	10,000,000	10,000,000
Public Law 129, 78th Congress (H. R. 2481)	20,000,000	30,000,000	20,000,000A
Public Law 367, 78th Congress (H. R. 4443)	20,000,000	40,000,000	25,000,000
Public Law 329, 79th Congress (H. R. 5458)	100,000,000	100,000,000	100,000,000
Public Law 422, 79th Congress (H. R. 5605)	250,000,000	250,000,000	250,000,000
Public Law 52, 79th Congress (H. R. 2689)	60,000,000	125,000,000	80,000,000
Public Law 132, 79th Congress (H. R. 3579)	120,000,000	120,000,000	120,000,000
Public Law 266, 80th Congress (H. R. 3601)	225,000,000	250,000,000	225,000,000
Public Law 712, 80th Congress (H. R. 5883)	400,000,000	400,000,000	400,000,000
Public Law 146, 81st Congress (H. R. 3997)	350,000,000	350,000,000	350,000,000
	150,000,000	150,000,000	150,000,000B
Public Law 759, 81st Congress (H. R. 7786)	350,000,000	350,000,000	350,000,000
			(-85,500,000C
	150,000,000	150,000,000	150,000,000B
Public Law 135, 82nd Congress (H. R. 3973)	100,000,000	100,000,000	100,000,000
	100,000,000	75,000,000	75,000,000B

A Direct appropriation.

B Contingent fund available upon certification of need.

C Reduction pursuant to 1214 of Public Law 759, 81st Congress.

1 E. B. Kennerly, American Law Section, Library Of Congress, Washington, D. C., April 14, 1952.