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Rural Lines—USA

The Story of Cooperative Rural Electrification



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This revised edition of **Rural Lines—USA** is a tribute to the people who helped organize this Nation's rural electric cooperatives. During the thirties they called the first meetings in Georgia; they collected easements in Iowa; they drew system plans on road maps in Ohio. In the forties they launched the area coverage idea in Texas and Montana. Wherever you looked, from Alaska to Florida, from Maine to California, rural communities produced the kind of leaders who could get the job done.

Now, just a few years later, nearly 99 percent of our farms and ranches are electrified. There are more than 1,000 REA-financed electric systems with plant worth \$7.7 billion. These organizations that began around a kitchen table have grown into an important and successful part of a big industry.

Looking at this record of accomplishment we might think the years ahead will be easier. They won't be. The systems we have built will continue to need pioneers. Today we need men and women who can find new ways to tell their story to members; who can plan systems to carry many times the present loads; who can chart a sensible and secure financial future. Rural electrification will require new approaches, fresh ideas. In saluting those people who organized the systems, let us also salute the new pioneers, the planners, who will provide leadership in the years ahead.

Revised September 1981

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Chapter I The Early Years

In the 53-year period from 1882, when the first central station generating system went into service, until 1935, only 10.9 percent of the farms in the United States had obtained electricity.

Since its creation in 1935, the Rural Electrification Administration has helped bring light and power to practically every corner of rural America, raising the proportion of electrified farms to more than 98 percent. REA borrowers also supply electricity to nonfarm rural establishments, including residences, businesses, schools, and churches, and they continue to meet the rising demand for power by all their consumers.

This record of service is being accomplished by systems designed to serve entire rural areas, including the sparsely populated sections as well as the more densely settled areas.

The notion that electricity generated at a central station could be distributed to every farm in the

United States took hold of people's minds slowly. Engineers knew how to do the job as early as 1915, when they learned how to transmit power as far as 100 miles. Since most U.S. farmers were then living within 100 miles of a generating station, large-scale rural electrification—for lighting at least—was technically possible. For the next 20 years, however, most people connected with the electric power industry in this country doubted that rural electrification would pay its way.

In the early 1920's, a growing number of rural leaders and others were demanding rural electrification. In response, the National Electric Light Association in 1923 organized the Committee on Relation of Electricity to Agriculture (CREA) to see what could be done for the U.S. farmer. CREA, largely financed by the electric power industry, combined farm groups, Government agencies, and equipment manufacturers to study whether a profitable rural market existed.

CREA's most important study took place near the town of Red Wing, Minn., where a 6-mile electric line was built to serve 20 farms. Ten of the farmhouses were equipped with practically every piece of electric equipment then invented. Electricity also was installed in barns, poultry houses, and milk sheds. Electric motors cut wood and dried hay.

It wasn't long before the 10 farmers with central station electric service could report that their lives were happier and healthier. Something else important was happening too. Electricity was raising the whole level of rural living. As their electric bills went up, the Red Wing farmers checked and found that their operating costs were going down. Soon, State electrification committees were formed to spread the news and to show other farmers how to put electricity to work.

The chief problem, however, remained one of getting electricity at a cost that would permit farmers and other rural people to put it to work. Some electric companies were willing to extend service to rural consumers, but the price usually was prohibitive. As a rule, farmers had to pay from \$2,000 to \$3,000 per mile for construction of the lines to their homesteads. Then, on top of these heavy construction costs, rural people usually had to pay more for the electricity they used than did their neighbors in the city.

One man deeply concerned about the high cost of rural electric service was Morris L. Cooke, an electrical engineer. He set out "once and for all" to solve the puzzle of the true cost of distributing electricity in rural areas. As an adviser to the Power Authority of the State of New York, he and a small staff of engineers started from scratch, adding up labor and material costs. Published in 1933, their findings showed that it was possible to build rural lines from \$300 to \$1,500 cheaper per mile than power companies claimed they could be built.

But it was evident to many that rural people in 1935 would not get central station electric service at rates they could afford to pay without the Federal Government lending a hand.



Homework by lamplight—an everyday event in rural America of the 1930's.

A New Agency is Born

As a result, the Rural Electrification Administration was created by Executive Order of the President on May 11, 1935. The order, numbered 7037, was less than two pages long, and it granted powers to an REA Administrator 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."

On May 20, 1935, Morris L. Cooke was appointed first REA Administrator, and he opened an office the following day. Within a week he had assembled a small staff, and within a fortnight, he had moved his fledgling agency to 2000 Massachusetts Avenue in Washington, D.C., the former residence of James G. Blaine and of George Westinghouse, Jr.

The agency was begun as part of a general program of unemployment relief under authority of the new Emergency Relief Appropriation Act, with \$100 million in funds for either loans or grants. Cooke insisted, however, that REA would have to be a loan agency, and it would have to be free to use skilled labor where it could find it, as opposed to providing employment for the unskilled.

On August 7, 1935, the President issued Regulation No. 4 establishing REA as a lending agency, freeing it from many relief program regulations, and broadening the Administrator's authority to make decisions.

Regulation 4 transformed REA from an emergency relief agency into something more closely resembling a bank. It created an orderly program of loans on an interest-bearing, self-liquidating basis. It made rural electrification a national business investment.

REA's first year proved a frustrating one. If Cooke had expected a flood of applications from electric companies, he was disappointed. The few applications that did come in from power companies proposed such high rural rates that Cooke felt he could not seriously consider them. His first four loans went, not to commercial companies, but to three electric cooperatives and one municipality.



Once appointed, Administrator Morris L. Cooke (inset) wasted little time in getting started. First REA headquarters was former mansion of James G. Blaine and George Westinghouse, Jr.



Administrator Cooke (in derby) and cooperative leaders at ceremonies marking the setting of the first pole in the Boone County (Ind.) REMC system. The event took place in January 1936, in Lebanon, Ind.



Co-sponsors of the Rural Electrification Act of 1936 were Senator George Norris of Nebraska (left) and Rep. Sam Rayburn of Texas (right).

Utility Companies Believe Farmers Can't Afford Electricity

The utility industry was convinced that income levels for the farmers must first be raised so they could afford electric service.

In his first radio message, Administrator Cooke made REA's position clear: "It is sheer nonsense to say that farmers cannot afford electric service," he said, "particularly in view of the comparatively large numbers who have telephone service and automobiles. A survey of the Mississippi Valley indicates that seven farms have automobiles and four farms have telephones for each farm that has electricity."

A committee representing a preponderant section of the private utility industry conducted a nationwide survey to determine the outlook for rural electrification. An 11-page letter to Cooke outlined the committee's findings: "rural electrification is a social rather than an economic problem . . . the problem of the farmer is not one of rates but of financing the wiring and purchase of appliances," it concluded.

The committee questioned the need for an all-out rural electrification effort. "The problem of actively promoting rural electrification has received serious consideration of utility companies for many years," it continued. "As a result, there are very few farms requiring electricity for major farm operations that are not served."

At the time, 89 percent of U.S. farmers were still without central station electric service. The committee suggested a comprehensive program whereby REA loans would go to power companies who would use them to construct lines and to extend credit to rural people to purchase electrical equipment. It concluded: "In cooperation with the REA we believe the privately owned utilities can absorb the full \$100,000 available. . . ."

After thanking the committee

for its efforts, Cooke rejected the proposal. He said, "We have many sound projects pending, submitted individually and in substantial part by public bodies and farm cooperatives, for which funds must and will be provided." However, he did not close the door: "I feel confident that our program can be enlarged sufficiently to take care of all the projects you contemplate, as and when they are put into more concrete form," he continued.

Cooke went further. In a letter to Senator Norris outlining the objectives of the REA program, he said, "We have conceived it to be part of our task to demonstrate that the costs of rural service can be markedly lowered."

It was the feeling of many in Congress and of many local farm leaders that rural people not only needed electric service, but needed that service under rates and conditions that permitted its full and productive use. They felt that electricity was too important to the development of rural America to make rural people wait for the commercial electric companies to take on the job, and they saw nonprofit cooperative organizations as one means of accomplishing their objective.

As a result, early in 1936, companion bills were introduced in Congress directing the REA Administrator to give preference in making loans to "States, Territories, and subdivisions and agencies thereof, municipalities, people's utility districts, and cooperative, nonprofit, or limited-dividend associations. . . ."

The REA bill was introduced in the Senate by Senator George W. Norris of Nebraska and in the House of Representatives by Sam Rayburn of Texas, later Speaker of the House. It was largely due to their hard work and to the support of farmers and their organizations, that Congress passed the bill which was signed by the President on May 20, 1936. Rayburn, many years later,

described rural electrification as "the biggest lift that farmers ever had."

Rural Electrification Act of 1936

The Rural Electrification Act of 1936 reestablished REA as a lending agency for 10 years and granted a clear preference to nonprofit organizations.

- It authorized \$40 million annually to be apportioned as loans among the States.
 - It stated that loans could be made for the purpose of financing the construction and operation of generating plants, transmission lines, and distribution lines for the furnishing of electric energy to persons in rural areas who were not receiving central station service.
 - It defined "rural area" as any area of the United States not included within the boundaries of any city, village, or borough having a population in excess of 1,500, including both the farm and nonfarm population thereof.
 - It permitted loans to extend over a period of 25 years.
 - It geared interest on the loans to the rate paid by the Government on its own long-term securities.
 - It provided that loans also could be made to finance home wiring and to purchase electric appliances, equipment, and plumbing.
 - It provided for an Administrator, appointed by the President and confirmed by the Senate, for a term of 10 years.
 - It required the Administrator to certify that in his judgment the security for each loan he approved was reasonably adequate and that the loan could be repaid within the time agreed upon.
 - It required that REA be administered on a nonpartisan basis.
- With passage of that act, the major decisions concerning rural electrification had been made. The way was cleared for action and action came quickly.

Chapter II The Formative Years

By 1937, REA policy was clearly outlined; Administrator Cooke had been an architect of that policy. John M. Carmody, who succeeded him as Administrator in February 1937, was an architect of method. A former coal company manager and magazine editor, Carmody was an apostle of the comparatively new discipline of Scientific Management.

One of Carmody's first moves was to make it clear that rural people must take the initiative in getting electricity for their communities. Most farmers had no idea how to go about buying "a package of electricity." When farm people wanted to become eligible for a loan for the construction of their own electrical system, they first had to incorporate and organize under the laws of their State. Next, they had to show REA that their project could operate successfully and that they could repay the Government loan—with interest—within the required period.

To do these things, the farmers had to retain an attorney. They had to elect directors and officers. They had to sign up prospective members, a number of whom were not quite sold on the benefits of electricity. The system had to be designed by engineers.

As if these obstacles were not enough, there were major legal barriers in many States. While no laws, in most States, specifically prevented rural electric cooperatives from forming, neither were there laws which permitted them. Electric utilities, on the other hand, operated under a well-established body of laws and under the supervision of State regulatory commissions.

In 1937, therefore, the REA legal staff drafted a model law for States called the Electric Cooperative Corporation Act. This uniform act was designed to give the co-ops ample powers to organize and build. It specifically exempted them from regulation by State commissions, since consumer-owned organiza-

tions are self-regulating. In one State after another, rural people sought sponsors for similar legislation, and by 1940, a total of 23 States had given the green light to rural electric cooperatives.

But the basic question of the right of electric co-ops to organize was but one of thousands of questions which were tossed in the laps of REA attorneys during the formative years. One lawyer remarked years later that if he had known of the legal jungle which lay ahead of him, he would never have joined the agency. By the end of 1938, members of the REA legal staff had written more than 900 opinions.

REA Helps Organize Projects

As a result of the pronounced need for help, REA decided to give local guidance to prospective REA borrowers. The Administrator added to his staff a number of people equipped to go into the field to show farmers how to organize and design their projects. Soon REA had



Because of the extremely short supply of electrical engineers familiar with rural conditions, REA hired directly from the colleges and developed specialized training programs. A group of 20 graduate engineers, selected from as many colleges and States, were assigned successively for 10-week periods to each of the major REA divisions. In this way, they became familiar with every phase of REA activity. Several of the original group remained with REA for many years.

One of Administrator Carmody's first acts was to appoint an efficiency coordinator to help get the program "on track" by utilizing innovative management techniques. Colonel George Babcock (left), REA's new coordinator, discusses plans with the Administrator.



The hard work of co-op organizing fell to local leaders.



The first job was signing up members.



Many struggling farm families worried lest the cost of electricity outweigh its benefits.

assembled staffs for engineering, legal problems, electric utilization, and management advice. The number of employees on the REA payroll climbed fast, rising from 99 in 1935 to 788 in 1939. The number of loan approvals was climbing, too. At the end of 1938, a total of \$88 million in loans had been approved. A year later, it had jumped to \$227 million. The young agency was on its way.

George P. Munger, an early REA official who had worked with TVA before joining the newly formed agency, recalled the spirit of enthusiasm that permeated the REA staff: "The early days of REA were just thrilling. So exciting. We were appreciated so much that it made every employee happy that he was there and they were happy to work nights or any other time in order to get the job done. They were the most dedicated, hard-working and enthusiastic people I ever saw."

As with most new ventures, the hard work of organizing the rural electric cooperatives generally fell to a handful of local leaders. These energetic few had to sell the co-op idea, organize meetings, collect the initial fees, sign up potential consumers, and contact REA for specifics on the program. These leaders usually worked without pay. Said one: "Many times my wife drove the tractor while I stopped to talk to a bunch of farmers about REA."

The story of a co-op in a Western State is fairly typical. In 1939, 10 men met to see what could be done to get electricity to their ranches. As a starter they ran an advertisement in the county paper inviting "all who want electricity" to a meeting the following week at the courthouse. They also wrote REA and asked that a Government representative be present at the meeting to answer questions.

So many people turned out for that first gathering that the organizers had to move to the local auditorium. The REA representative said that the first job was to sign up prospective members—at \$5 per consumer. If the organizers could sign up as many as three members to the mile, REA was likely to ap-

prove a loan to build a distribution system.

The first meeting brought a stampede of applicants for electricity, but it was only the beginning. More meetings followed, sometimes one every night. Finally, one winter evening, the 10 men gathered around a kitchen table, spread out county road maps, and began to "plot in" the homes of the people who had already signed up. Then they drew lines where they thought the wires could be strung, picking up as many new members as possible. When they had a general idea of where they were going, they split into teams of two men each to call personally on those farmers along the way who had not yet joined the co-op.

Despite years of talk about rural electrification, rural people were not universal in their demand for electricity. Some still worried

about "getting in debt to the Government." A few were not sure that electricity was worth the expense. And in the thirties, \$5 was not a sum to be taken lightly. A South Carolinian who helped organize a cooperative in Williamsburg County remembers a time when it "was hard to get hold of \$5 because \$5 looked as big as a tabletop in 1939." In his drive for members he sometimes had to take \$2 in cash and a note for the other \$3.

Rural People Did Their Share

The signup teams got wiser as they went along. They found that it was better to have both members of the farm couple present when they talked about the benefits of electricity. Often the wife would pay the signup fee before the organizers had finished arguing with her husband.

When the signup campaign

was completed, preliminary plans and tabulations were sent to REA for consideration. With REA's approval of the loan, an engineer was hired to begin construction plans.

Then the easement campaign began. At the outset of the electric program, REA had decided not to approve use of loan funds to purchase rights-of-way from members, feeling that payment would be inconsistent with the idea of member-owned cooperatives. As a result, cooperatives had to obtain thousands of easements across property, each one signed by the property owner. Some idea of the size of the task is indicated by the fact that co-ops had collected more than 1 million separate easements by 1941.

The job would have been difficult enough had all the farmers been agreeable, but many were not. As in the signup drive, they had to



Some, who couldn't wait, "advertised" their impatience.



Farmers often helped select routes for power lines.



An early REA sign let local people know electricity was on the way.

be sold individually. A number of rural people still had the idea that in signing an easement, they were mortgaging their property to the U.S. Treasury.

In some cases, easement solicitors had to exercise patience above and beyond the call of duty. In one co-op area, repeated calls on a property owner had failed to secure his signature. He didn't want electric service himself, and he was suspicious of the Government, the cooperative, and everyone connected with the project. To route the line around his property, however, meant hundreds of dollars wasted.

As a last resort, the REA field engineer called on the man, and found him nursing a swollen jaw. A tooth was "killing" him, but he had no way to get to a dentist. The engineer drove the suffering man to town, waited until the tooth was pulled, and took him home again. Hours later, the farmer got around to asking his visitor what he wanted. The engineer explained, the farmer listened carefully for the first time, and finally understood what was being asked of him. The lines went through the following day.

On the other side of the coin was the unhappy fact that many farmers who wanted electricity could not be included in the first systems built. They were too far from the main line, or they lived in areas where not enough neighbors had signed up. Area coverage was a goal in those days, but co-ops also had to repay their debts. The distribution system had to be feasible, and each addition had to be calculated carefully.

One Georgia farmer who tried to join his local cooperative for \$5 was told that his home was too far from the electric line. If he wanted electricity, he would have to pay \$165 for a line extension.

A week later he returned, still waving the \$5.

"I moved my house," he explained in triumph. It had cost him \$50 to prepare a new foundation, roll his house across the fields, and set it up a few feet from the line.

Chapter III Mile by Mile

REA engineers were faced with several problems in expanding rural electrification after 1935. There was, first of all, a need for maximum economy in construction. Rural people were in no position to pay the bill for constructing lines that were as heavy and expensive as those built in town.

From the beginning, therefore, REA engineers concentrated on finding new and cheaper ways to build rural lines that were both simple and sturdy. Their research was enormously successful. The cost of building rural lines before REA had been between \$1,500 and \$2,000 per mile of line. By the end of 1936, nine projects had been built in as many States at an average cost of only \$941 per mile of line. By 1939, REA borrowers were building lines for an average of less than \$825 per mile.

Construction costs were cut by the use of high-strength conductors, which permitted longer spans and cut the number of poles needed per mile from about 30 to 18. The use of vertical construction, as opposed to the familiar crossarm on single-phase lines, and standardization of much of the equipment used also were important cost cutters.

Construction Techniques Developed

For the construction itself, REA applied its own version of the moving belt principle which had proved so successful in the automobile industry. Instead of using a stationary crew beside a moving assembly line, construction engineers moved waves of highly specialized workmen along the rural roadways.

There was little money to invest in elaborate surveys. In more than one instance, borrowers picked up automobile tour maps from local filling stations and used these to lay out systems.

Guided by his road map, the driver of the staking team would move slowly along the route for the new electric line. A boy in the back of the truck, equipped with a 300-foot rope and a pile of wooden stakes, would throw a stake every 300 feet and haul in his rope for the next run.

Behind came a man who drove



Simple but sturdy construction, pioneered by REA, kept costs down, while maintaining reliability.



A series of crews was able to complete several miles of electric line each day. After previous crews had marked out the sites, dug holes, and erected the poles and hardware, the line was played out. Subsequent crews would attach the wires and hardware to the poles, and connect individual homes to the high line.

the stakes, the crew to dig holes, and the equipment crew, which determined what type of pole and assembly to drop off at each hole.

Still another crew attached brackets, bolts, and insulators to the pole. They were followed by men who set and guyed the pole where necessary.

Wire stringing was a separate function, and more crews came along to hang transformers and install meters and service wires.

On a good day, it was not unusual for a contractor to build 3 miles of line per crew. One contractor on a 75-mile project reported a rate of about 4½ miles per day.

Beyond the emphasis on standardization, there was plenty of individual ingenuity. One resourceful contractor found it impossible to drive his pole truck back into the muddy fields where the line was supposed to go. So he hitched a trailer to his truck and hauled a mule in it. When his crew hit mud, they unloaded the mule and let it drag the pole into position.

Construction had its dramatic moments. One rainy day in Indiana, a woman lay dying of pneumonia in her farmhouse. The doctor said that an oxygen tent might save her, but there was no electricity in the house to operate the fan in the tent. Work-

ing in the storm, three linemen built a 500-foot extension from the co-op line in just 2 hours. The switch was turned in time; the woman's life was saved.

As rural line construction proceeded at a faster and faster pace, private utility companies were spurred by the example of the cooperatives to build their own lines in rural areas. In some cases, this new building led to bitter feelings between co-ops and commercial companies. Frequently, construction took the form of "spite lines"—built almost overnight after a cooperative was organized to preempt the best part of the planned service area.



Early crews had few power tools to work with. Holes were dug by hand...



... and the new pole lifted and set into place.

New Lines Meet the Test

At REA in Washington, there was less worry about power companies' lines than about the quality of lines REA engineers designed. As building went on, they waited with some apprehension for a real test of their innovations.

The acid test of rural line construction was its ability to withstand natural hazards like ice storms, windstorms, and lightning. Conditions such as these demanded the adoption of the best techniques that had been developed by the electric and manufacturing industries. In the winter of 1938 in eastern Iowa, REA-financed systems received a strenuous test. The heaviest sleet storm in the records of the local Weather Bureau struck without warning. It brought down more than 5,000 telephone poles and caused over 200,000 wire breaks in telephone lines. On REA-financed electric lines, however, only 200 breaks occurred and only one pole broke off. Some 17 miles of poles came down without breaking and were easily re-erected. REA's recommended lightweight construction was vindicated.

The \$5 the farmer paid to join the co-op was but a down payment on electricity for his farm. After construction of lines to his property he still had to wire his house and barn to receive electricity and buy lighting fixtures, appliances, and equipment to make use of it.

Like construction costs for the lines, the average price for wiring a farm—although only \$70—was a substantial sum to the farmer. REA realized that the cost of wiring would possibly keep many rural people from taking electricity. As a result, REA created a "group wiring plan," which cut home wiring costs to about \$55. Meetings were held in each project area to explain to farmers why they should complete installation as soon as possible.

Group plans paid off. In 1938, the superintendent of a Michigan electric project wrote REA: "If you were here, I could take you to hundreds of homes completely wired, with fixtures hung and bulbs in place, ready for the 'zero hour' when the lines will first be energized. I



Considerable planning went into the placement of poles. If a windstorm was to topple this one, it would not strike the building. Note storm cellar behind house.



REA Administrator Harry Slattery (center) poses before progress chart. Figures shown indicate that by mid-1939 REA's 678 borrowers had more than doubled the percentage of America's farms with electric service.

could take you to homes where electric ranges, electric refrigerators, radios, and even electric clocks are installed and ready to operate."

Chapter IV After the Lights Came On

It is next to impossible for people who have grown up with electric lights to imagine the deep emotion felt by rural families when their homes were first electrified.

But a dairy farmer in Kentucky well remembers that day, and his experience was the experience of several million families across the Nation.

"We kept a lantern hanging beside the kitchen door," he relates. "Winter mornings I'd take the lantern and head for the barn. It would be so dark out you'd think you were in a box with the lid shut. We always had at least a dozen cows to milk, and just my dad and me to do it.

"I had a lot of other chores to do before I went to school . . . that made me late for school some mornings. I'd fill the wood box beside the kitchen stove and I'd bring in a bucket of water. Sometimes the

pump would be frozen solid and I'd have to thaw it out before I could pump the water.

"Soon as I'd get home from school I had more chores to do, and then an early supper, and after that I'd get at my homework. I'd study by a kerosene lamp in the kitchen, up close to the stove. We all spent most of our time in the kitchen during the winter.

"We'd heard that the Government was going to lend us money to get lights, but we didn't believe it until we saw the men putting up the poles. Every day they came closer, and we realized it really was going to happen. So Dad went ahead and had the house wired.

"It was almost 2 months later before they finished the job and turned on the power. I'll never forget that day—it was late on a November afternoon, just before dark. All we had was wires hanging down from

the ceiling in every room with bare bulbs on the end. Dad turned on the one in the kitchen first, and he just stood there, holding onto the pull-chain. He said to me, 'Carl, come here and hang onto this so I can turn on the light in the sitting room.'

"I knew he didn't have to do that and I told him to stop holding it, that it would stay on. He finally let go, and then looked kind of foolish."

The Night the Lights Came On

That night—"the night the lights came on"—was forever after a significant date to most farm families, ranking with marriages and births as an anniversary of importance. In countless homes, lights remained on all night long, with people getting a good look at the room—and at each other.

Years later, a President of the United States would recall that eventful day. Speaking to a group of high school students whose trip to Washington had been sponsored by rural electric cooperatives, President Jimmy Carter said: "I think the best day of my life—the one I remember most vividly with the possible exception of my wedding day—was the day they turned on the lights in our house. Also the bringing of the rural electric program to the farms of our Nation made it possible for us to stretch our hearts and stretch our minds to encompass public involvement in affairs that would not have been possible without the rural electric program."

At a crossroads in Texas, the night the lines were energized, ranchers filed past a newly dug "grave," hurling their kerosene lamps into the pit as a sign of their deliverance.

In a small farmhouse in Missouri, a woman ignored the lamps which suddenly burst into brilliance, and ran instead to the kitchen, where her new refrigerator had stood for a month awaiting current. When she saw that the little light inside really came on, she burst into tears of relief.

At a general store in Georgia, the storekeeper boasted of new electric light for a month before discovering that it was only the



Few people will forget the first night that the lights came on.

night light over his cash register. When a co-op man showed him how to turn on the rest of his lights, he was speechless with amazement.

One woman, over 100 years old, wrote REA to thank the Government. She had never felt that she had been born too soon, she said, until the night the lights came on. Now she regretted that she would see so little of the future.

"To my mind, the coming of electricity began a new kind of life for most of us," explained a retired South Carolina schoolteacher.

"It meant much more than gadgets and appliances. Tenant children used to quit school in the third grade. Now they go through high school, and many finish college. It all happened after the lines came through."

She remembers a tragic grade school fire which took at least 100 lives in 1926. It began when a child knocked over a kerosene lamp during a lodge meeting in the second floor of the school. The people piled down the one narrow curved staircase, smothering and trampling each other.

The replacement of the coal oil lamp by electricity changed rural education; in fact, it changed many facets of life in the rural community. Rural people were now offered, in one significant respect, equality of opportunity with city people.

Electric Iron is First Appliance Chosen

The coming of electricity meant the emancipation of the rural woman. As a rule, women put electricity to work before men. The first appliance bought generally was an electric iron. Young people today are not aware of the origin of the word "iron," as they press clothes with lightweight appliances of aluminum or hollow stainless steel. But their mothers and grandmothers know that iron meant just that—a 6-pound wedge of cast iron that had to be heated on a wood range and handled with a pot holder. The rural woman had three or four of them, so that several could be heating while one was working. It is little wonder that an electric iron was first on the



A smokeless electric range and refrigerator made cooking chores easier.



An electric iron was the most wanted appliance in the early days of REA.



Radio played a close second to the iron in popularity—it opened a whole new world to the rural family.

shopping list of most women after the lights came.

A close second to the iron in popularity was the radio. It meant the end of the farm family's isolation from the company of their fellow creatures. It meant the end of loneliness. A whole new world opened to the rural family.

For the first time a farmer in Illinois heard the market report—and a rancher in Texas heard the newscast. Now a Gulf Coast family could get hurricane warnings.

"The day we got our radio," wrote one woman, "we put it in the kitchen window, aimed it out at the fields, and turned it on full blast. During the first week, the workers hated to be out of the sound of it."

The co-ops knew from the start that they had a task of education on their hands. Families asked their cooperatives for advice, and the co-ops often turned to REA.

In 1935, REA employed two women to plan a program to teach the use of electricity, and in 1936, the agency published leaflets to answer questions about the cost of lighting and operating various appliances. These were distributed through the cooperatives.

Before long, it was evident that the printed word alone wouldn't do the job. REA expanded its utilization

division, and sent six teams of specialists into the field to work with co-ops in showing members how to use electricity. The teams were on the road for months at a time, holding meetings in homes, schoolhouses, and co-op offices.

REA "Circus" Hits the Road

REA organized the Demonstration Farm Equipment Tour, or "REA Circus" in 1938, and put on shows in 20 States. Under a tent seating 1,000 people, REA employees, county agents, and State extension specialists set up shop in farmers' pasturelands and demonstrated the proper use of farm equipment and household appliances.

That first year, audiences of between 500 and 800 people arrived early in the morning and stayed after dark to watch live demonstrations of portable motors and electric brooders; to watch stove top and roaster meal preparation; and to learn about proper lighting. Louisan Mamer, an REA employee who helped conduct the Tour recalled: "In the fall of 1938, we ran into cold weather. For the last show in Iowa, it turned so cold we got grocery bags and rubber bands, and gave them to the people to put on their shoes."

An enterprising Kentucky pullet

had her own "ideas" about the proper use of electricity. Inspired by her newly lighted chickenhouse, she laid an egg shaped like a miniature light bulb.

The press was delighted: the egg was mentioned in a nationwide radio broadcast; months later, REA received clippings of stories about the egg from newspapers in Sweden and Spain. Still later, it wound up at the New York World's Fair of 1939.

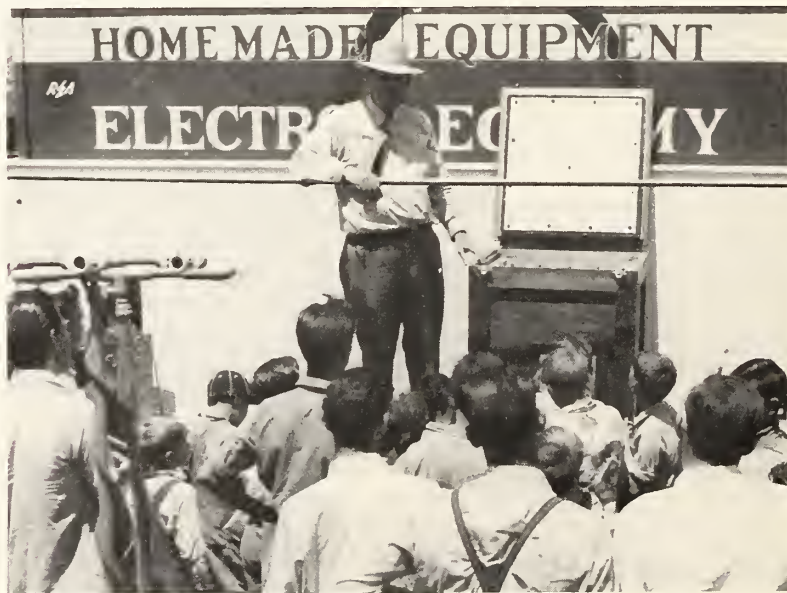
The editors who liked the story so much knew it concerned more than a pullet and a bulb-shaped egg. They sensed that something big and new was happening to American agriculture, and they were right. Electricity was the biggest thing that had happened to rural life since the arrival of the Model T.

Farmers were quick to prove that they were bigger potential users of power than their neighbors in the city, who had enjoyed the benefits of electricity for many years. Little by little, electricity began to take over the chores. It could milk cows, pump water, warm pigs, hatch eggs, brood chicks, sharpen tools, and drill holes. Electricity was a hired hand that paid for its own keep.

Frequently, young people were quicker to apply electricity to new jobs than their parents. They were not so used to doing things in a cer-



The REA "Traveling Circus" showed rural people how to use their newly acquired electricity.



Audiences of between 500 and 800 people arrived daily to watch live demonstrations of how electricity could be put to work.

tain way. Many took on electrified farming experiments as 4-H or Future Farmers of America projects, and kept books to prove how electricity could be used for greater production and profit. They learned to use power machinery in high school and they saw to it that similar tools were installed in the farm shop at home. They suspected that the success of a farm would someday depend considerably on the ability to put machines to work.

Electricity made a difference in country schools all across the Nation. Teachers and principals reported that pupils' grades improved remarkably after lines were energized. Both better lighting and the influence of radio were credited with improving scholarship. Students were cleaner, too. At one school, they used five times as much liquid soap a year after running water was installed inside the schoolhouse.

Every community, every co-op, had its own stories about the way members were putting electricity to work. It was the beginning of a revolution in rural America that is still going on.

Electric Cooperatives Are Successful Businesses

At first it appeared that the typical electric cooperative had two

strikes against it, but it turned out in the long run to be an enormously successful organization. Behind that success was an intangible item that doesn't show on the balance sheet—enthusiasm. The consumers, the directors, and the co-op employees were sold on electricity. They had waited a long time to get it, and they weren't going to give it up.

Consumer enthusiasm showed up in many ways. Many of the people paid their bills ahead of time. At harvest, thousands of farmers deposited from \$30 to \$60 with the local co-op against future billings.

One cooperative, short of employees, had trouble keeping track of all the money and had to write members that "it would convenience us greatly if bills were not paid at the office until statements are received."

Most cooperatives let members read their own meters and, in some cases, figure their own bills. Almost everyone was scrupulously honest. One farmer, whose meter was damaged by lightning, was told to pay a bill of \$5, the same as his previous month's bill. He sent in \$10 instead.

"I'm sure I used at least that much current this month," he said.

Self-billing, coupled with a watchful eye to spot trouble before

outages occurred, helped hold operating and maintenance costs down.

By and large, local business-people were enthusiastic about the new co-ops, too. Electrification boosted the economy of rural towns. It brought new appliance stores and equipment dealers to Main Street. It created new jobs for the young people from farms. The co-op's payroll made a difference to merchants, too, for the cooperative was often the biggest business in town. A banker in Preston, Minn., confessed that the largest check ever written on his bank was for \$53,700 by the local cooperative to the contractor who built a portion of its lines. The \$90,000 Government check deposited by the co-op was the largest single deposit the bank had ever received.

Among the people whose spirit kept the cooperatives going were the managers. Qualifications for the job were severe.

What some managers lacked in experience and in training, they made up for in hard work and courage. They went sleepless during storms. Many of them set up cots at the office, brought hot plates, and lived on the job site. Frequently, they drove their employees hard, but they took the toughest jobs for themselves. During a storm in



The hand saw and axe were no match for electricity.



Electricity revolutionized rural schools. Improved lighting brought higher grades. Indoor plumbing and central heating increased attendance.



By reading their own electric meters, cooperative members helped keep the cost of electric service down.



In 1939, REA became part of the U.S. Department of Agriculture.

Nevada, for example, lightning blew a fuse at the main disconnect switch on a transmission line. A flood that followed the storm washed out the only bridge in the area, so that the manager had to drive more than 200 miles over dangerous mountain roads to replace the fuse. It took him 10 hours at night to do it, but he was on the job the following morning.

Electricity had come to rural America to stay.

On July 1, 1939, REA ceased to be an independent agency and became a part of the U.S. Department of Agriculture. The change allowed REA to retain its administrative integrity, while placing its operations under the general supervision of the Secretary of Agriculture.

The electrification of rural America continued at an even faster pace. By 1940, loans totaled \$268 million, and in 1941, the agency had its biggest year up to that time, approving more than \$100 million in loans.

The War Years

The war put a virtual halt to rural construction. It was getting hard to procure materials in 1941, and by 1942, systems required priorities to get things they needed. REA moved from Washington to St. Louis, Mo., to release office space in the Capital for agencies more directly connected with the war effort.

But REA did not go out of business. It continued to examine applications and to earmark funds for projects. In January 1943, the War Production Board, which was responsible for the order of priorities, relaxed its restrictions somewhat so that rural people close to existing power lines could obtain extensions—if they could show that electricity would mean an increase in food production or a decrease in labor.

During the war years, American farmers broke one production record after another. Their output filled America's own military and civilian requirements, plus part of the needs of its allies.

Rural electrification also meant that more plants and businesses—

many supplied materials for the prosecution of the war—could be built in the country. The number of rural firms on REA lines tripled during World War II.

REA engineers concentrated on a number of wartime tasks. At the request of the military, they solved a problem of electrical interference of a submarine detector. Twenty-one REA technicians were assigned by the Signal Corps to assist in development of communications during construction of the Alcan Highway to Alaska.

When the cooperatives were first organized, many directors wondered how on earth farmers were going to use all the electricity that the lines were built to carry. But their apprehensions were short lived. Within 12 months after one project was energized, a survey disclosed the following purchases of appliances by members:

	Percent
Electric irons and radios	84.3
Washing machines	63.2
Vacuum cleaners	48.2
Toasters	35.5
Electric motors	27.1
Refrigerators	20.0
Electric water pumps	16.2

Not all rural people, however, felt at ease with their new servant. After all, electricity was the same stuff as lightning; it sounded dangerous to many who had had no experience using it. One woman in Kentucky kept a new electric iron for weeks before she dared use it. Her neighbor always used a pot holder to turn on her electric switches. Some rural people kept sockets plugged at all times for fear the electricity would leak out.

For the new cooperatives, these stories had their serious side. When a co-op depended on building electric load to repay its Government loan, it was no laughing matter that even a few people were too afraid of electricity to use it.

And with still others, it wasn't a question of fear, but of habit. They were used to doing things the old way.

Meanwhile, there were other developments. In 1942, a number of REA borrowers organized their own



A typical "store front" headquarters used by many electric cooperatives as their first office. Later co-ops designed and built their own facilities.



In 1942, cooperatives formed their own trade association, the National Rural Electric Cooperative Association (NRECA), to provide themselves with a variety of services including employee insurance, group purchasing, and congressional representation.

trade association—the National Rural Electric Cooperative Association (NRECA). It is a nonprofit, private organization, incorporated in the District of Columbia, and during World War II, its membership increased to include 549 rural electric systems financed by REA. Clyde T. Ellis, a former Congressman from Arkansas and staunch REA supporter, became its first executive manager.

By 1942, a number of statewide organizations of REA borrowers also had been formed. Many other State groups have been formed since that time. In all States where REA borrowers are operating, systems have made arrangements for assisting one another following damage to lines by floods, storms, or other disasters.

Pace Act Makes REA Permanent

In 1944, Congress passed the Department of Agriculture Organic Act, familiarly known as the Pace

Act. By this Act, the loan authorization authority of REA, which would have expired in 1946 without new legislation, was continued indefinitely. The Act also changed the rate of interest charged on outstanding and future REA loans to a flat 2 percent, abolishing the old interest formula based on the Government's cost of money. Previous interest rates had fluctuated from 2.46 percent to 3 percent. The Pace Act also extended the maximum amortization schedule on all REA loans from 25 years to 35 years.

Before the war, many rural people had looked upon the REA program as a short-term affair. In the floor debate over the Pace Act, however, the Congress made it clear that it intended for all of rural America to be electrified. Many felt that REA's basic objective must be to help make electricity available to all rural people under rates and conditions comparable to those available to town and city people. Con-

gress was told what to expect in the way of applications, and the Congress responded. With the end of the war, the appropriation bills for 1946 and 1947 made available a total of \$550 million in loan authorizations.

Co-op directors and managers were finding out that it would take increasing amounts of capital to increase the capacity of the rural systems to serve consumers already on the lines, for farmers were using more and more electricity with each passing year.

In addition, nobody had to sell anybody on rural electrification. Veterans were returning home to the farm, and they had learned to take electricity for granted. They had had electric lights on battleships, in barracks in Texas, in tent cities in Hawaii. One young man who had begun shaving while in the service got back to his farm before he recalled that he couldn't use his electric razor in his unelectrified home.

Farmyard security lights guard against intruders, help the farmer perform many early morning and twilight chores.



The wartime slowdown in construction created a logjam of applications for electricity. As a result, everybody in rural America demanded service and wanted it right away. At that time there were 2½ million farm families still living without electric light and power. By and large, the unserved people were in the thinner, less densely settled areas.

Electrifying these farms proved to be a rougher job than anyone had suspected. Manpower was scarce and so were materials. The REA staff had been cut considerably during the war, and trained technicians were hard to recruit. Poles were in short supply. Transformers, pole hardware, and other line construction components also were hard to get.

Not until the end of 1948 was the worst of it over. Construction then began to move full speed ahead. More than 40,000 consumers per month were being connected to REA-financed lines, far exceeding all pre-war records. By June 1949, more than 78 percent of the farms in this country were receiving central station electric service.

In the process, electric lines began to cross vast areas of the Nation which had not shared in early rural electrification. The first lights came on in farm homes in the Dakotas and on Montana ranches. In more thickly populated States, new construction picked up farms and stores that had missed electricity the first time around. Cooperatives hurried to make area coverage a reality.



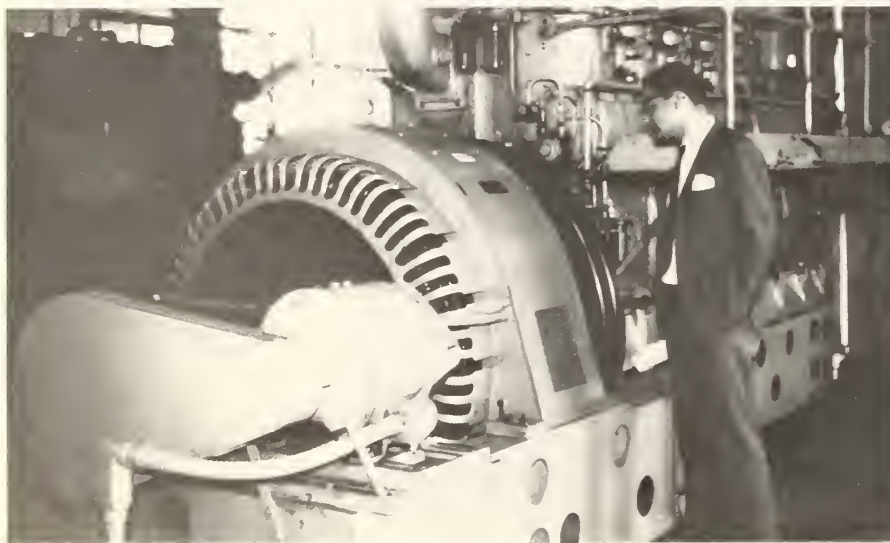
In 1940, REA produced a 30-minute documentary film on how electricity was changing rural life. Within a month after its release, "Power and the Land" had been booked by more than 1,000 theaters across the country. Under a special arrangement between REA and RKO Radio Pictures, the film was shown in regular moving picture theaters.

Written by Pulitzer Prize winning author Stephen Vincent Benet, and directed by Joris Ivens, who was one of the top film documentarians of the time, the film quickly became a classic. At its first Washington D.C., showing, "Times Herald" movie critic Bernie Harrison called it "a symphony in celluloid," and "as powerful and moving a drama as the cinema capital has ever turned out." Critics in many other newspapers agreed.

Filmed on location at a family-owned farm in Belmont County, Ohio, the film showed how antiquated the equipment of the average farm was, compared with the ordinary comforts and efficiency of work in the city. Its premiere, held in nearby St. Clairsville, was accompanied by a parade with brass band and a host of local, State, and Federal officials.



A 14,000-kilowatt generating plant built in 1941, far left, contrasts with a 300,000-kilowatt unit, center. An experimental 50,000-kilowatt nuclear plant (round dome) was completed in 1969.



The demand for power quickly outpaced the capabilities of many of the smaller diesel units installed in the program's early days.

The construction of electric distribution lines into rural America is only part of the job of rural electrification. Electricity cannot be distributed to rural people without an adequate and dependable supply of wholesale power at reasonable cost.

Rural electric systems typically bought their power wholesale from existing suppliers and delivered it at retail to their consumers. In 1960, they purchased about 85 percent of their power supply from commercial power companies and from Federal agencies such as TVA, and from other public bodies, including municipally owned systems. The remainder they produced themselves, utilizing REA generation and transmission loans to finance the facilities. By 1970, they were producing a little over 26 percent of their own power requirements.

Although the Rural Electrification Act of 1936 grants the REA Administrator broad authority to make loans for generation and transmission, REA approves such loans only where: (1) no adequate and dependable source of power is available to meet consumer needs; or (2) where the rates offered by existing power sources would result in a higher cost of power to the consumers than the cost from facilities financed by REA. The amount of the power cost savings resulting from the REA-financed facilities must also bear a significant relationship to the amount of the REA loan.

The first cooperative generation plants had no operating history or experience to draw from and had to be organized and developed from "scratch"—often over the outcries of the established utility industry. A frequent criticism was that they were not managed in accordance with sound business principles and therefore would become a burden on the taxpayers.

Once established and in operation, however, they were to quickly disprove their critics, and in many cases have a positive impact on the availability and cost of wholesale power. Sometimes the mere suggestion that REA might finance a

generation project was enough to bring down the commercial cost of power.

The first REA-financed generation loans were made to distribution borrowers for small emergency plants, usually diesel. Essential as these units were in the early days of the program, many quickly became too small to be efficient and delivered high-cost power.

Rural Systems Seek Economies of Scale

To provide their consumers the benefits of lower cost power from larger and more efficient generating units, a number of distribution cooperatives joined together to form federated generation and transmission cooperatives. The board of directors of a federated G&T cooperative includes representatives of each of its member co-ops and the system supplies wholesale power to all of them.

As the armed forces released personnel and materials after World War II, an upsurge in the demand for electric power in rural areas began. In 1945, only 2.4 billion kilowatt-hours were utilized by REA's distribution borrowers. By 1955, the demand had climbed to 17.3 billion kilowatt-hours, and by 1965 it was 45.3 billion kWh.

This fast-growing need for electric power in rural America, coupled with advancing technology in the electric industry, called for large generating plants and extra high voltage transmission lines. It required that the rural-based systems work closer together and with neighboring urban-based systems in power pooling arrangements for their mutual benefit.

At the 1965 NRECA Annual Meeting, REA Administrator Norman M. Clapp said: "The tide of technology is sweeping your systems into a new phase, a phase which will require far greater emphasis on pooling resources. We are going to have to look beyond local patterns to regional and inter-regional power supply patterns. The kind of large-scale interconnection and pooling being envisioned would produce enormous benefits for rural electric cooperatives and their consumers. It would permit construction of larger and more economic generating units and transmission of bulk power from generating sources to major load centers."

A major objective was to utilize the economies of scale in the production and distribution of electricity as a method of reducing rates to consumers. In a talk entitled "Meeting Tomorrow's Power Needs,"

Rural Electric Cooperatives Help Boost the Rural Economy

On June 26, 1961, REA established a Rural Development Staff to assist borrowers in an attempt to reverse the downward trend of rural areas. REA Administrator Clapp said, "Our job cannot end with bringing people electricity and telephones. These services have made rural life more attractive, but they are not enough by themselves to arrest the drift away from our communities—and from the meters on your power systems." Idle services on co-op lines had reached the 500,000 mark.

The Rural Development staff provided direct assistance by helping local business ventures secure financing. In addition, REA used Section 5 of the Rural Electrification Act to make loans to rural electric systems for community projects. These funds were then reloaned to local business ventures for the purchase and installation of electrical components of new or revitalized enterprises.

Soon, many of the rural electric systems were taking the initiative in helping develop the economic potential of the areas they served. In addition to helping arrange financing, they supplied management and technical assistance, provided meeting space, clerical and other assistance, and took the leadership in getting community support for needed development activities.

During the 1960's, nearly 4,100 commercial, industrial, and community facilities were assisted by REA borrowers. These created 180,000 jobs directly, and another 120,000 jobs indirectly.

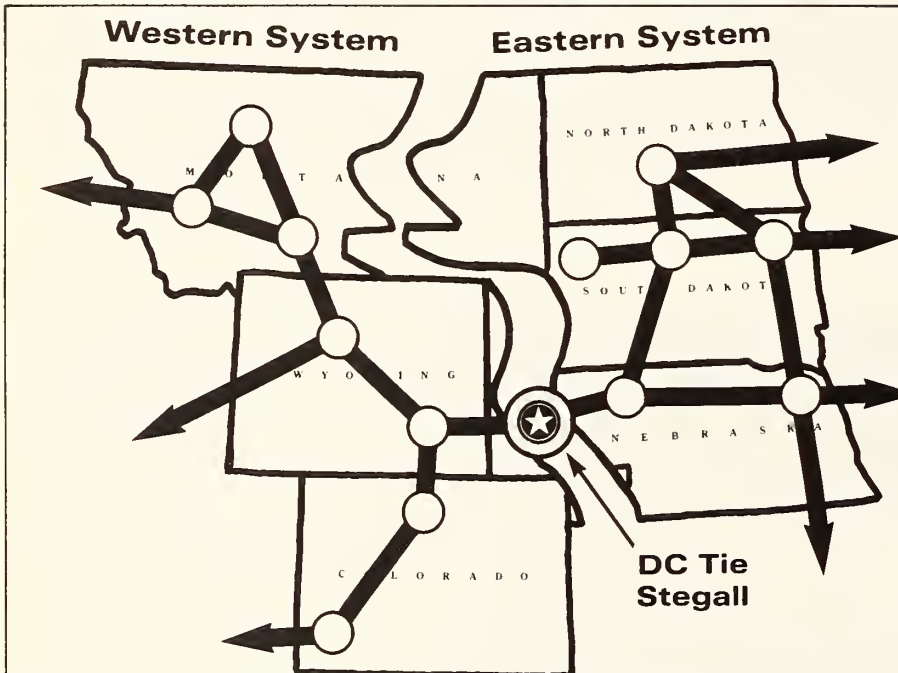
The number of commercial and industrial loads added to the lines of rural electric systems during this time averaged 10,000 each year, and such users were doubling their kilowatt-hour consumption of electricity every 5 years.



This 1.5-million kilowatt plant near Wheatland, Wyo., is owned by six co-op and municipal wholesale power organizations. Its lines ultimately serve about 2 million people throughout an eight-State region.



Adequate electric power opened the door to services once denied rural people.



The first firm interconnection of the eastern and western power grids in the United States was made by REA-financed cooperatives near Steegal, Nebraska.

Mr. Clapp rationalized REA's position: "Engineers have known for a long time that part of the answer to finding ways to provide lower cost wholesale power will come from generation and transmission on a larger scale than ever before. REA has been arguing for years that the lower the cost of power, the greater its use by consumers, and as the use increases, the industry prospers."

In 1958, the Central Nebraska Public Power and Irrigation District began operation of the first REA-financed 100-megawatt, single-unit generating plant. In 1964, REA made a loan to Dairyland Power Cooperative for a 300-megawatt unit to meet the rising power needs of 104,000 consumers on the lines of 27 distribution systems in 4 States.

Rates Begin to Come Down

It wasn't long before these efforts began paying off. During fiscal year 1964, six power-type borrowers made wholesale rate reductions ranging from 2.5 percent to 9 percent. The average rate for power supplied to distribution borrowers declined from 11.4 mills in 1954 to 8.5 mills in 1964.

REA was able to report in its Annual Report for fiscal year 1966 that 151 electric distribution borrowers had made rate reductions during the year, bringing the total of such reductions for the past 5 years to 496, for a resultant annual savings of \$16.7 million to consumers. Moreover, at year's end, some 103 proposals for rate reductions were under consideration.

The average cost of a kilowatt hour of electricity for all consumers served by REA-financed systems declined to a new low of 2.02 cents during calendar year 1965.

Co-ops Unify America—Electrically

On December 8, 1976, a firm interconnection between the eastern and western grids of the United States was made by two REA-financed cooperatives, Tri-State G&T Association of Colorado and Basin Electric Power Cooperative of North Dakota. The intertie was financed by REA, and is capable of moving 100-megawatts of power between

the two major electric grid systems. At the dedication of the project, REA Administrator David A. Hamil noted: "I believe that it is exceedingly fitting that this first tying together of our Nation was accomplished by rural electric cooperatives."

In areas of the country where philosophical differences had been strong enough to produce conflict between cooperatives and power companies, REA and its borrowers worked to create an atmosphere of mutual respect. Leaders in the electric power industry—both cooperative and private—were urged to work out their differences in point-by-point negotiation.

Rural electric power cooperatives discovered that pooling arrangements and interconnections with private power companies not only improved their own operations, but benefited the general public as well. They often meant the difference between a brownout and a blackout in the larger metropolitan areas of this country.

Keeping pace with the growing technological demands of the electric industry, however, was requiring ever-increasing amounts of capital. During the 1960's, program leaders became increasingly concerned about the future availability of adequate amounts of long-term capital. A "capital gap" had developed between the amount of growth capital needed by the Nation's rural electric systems and the amount of loan funds available through the REA loan program. Between 1965 and 1970, the capital needs of rural electric systems averaged \$480 million annually, while Congressional appropriations for the REA program were averaging \$330 million—approximately two-thirds of the total amount requested yearly.

In 1963, the National Rural Electric Cooperative Association examined various approaches to obtaining additional capital for rural electrification, and as a result, in 1966 and again in 1967, legislation was introduced in Congress to create a Federal Rural Electric Bank. Efforts to enact this legislation, however, failed.

CFC Is Launched

In January 1969, after many months of intensive study, establishment of a borrower-owned, self-help cooperative to provide supplemental financing to the REA borrowers was recommended at the NRECA Annual Meeting. The new organization would be capitalized initially through the investment by its members in "Capital Term Certificates," and these funds would furnish security for short-term loans and for issuing long-term debt securities in the capital market.

On April 10, 1969, the National Rural Utilities Cooperative Finance Corporation (CFC) was incorporated in Washington, D.C., with the wholehearted support of REA. And on February 16, 1971, the first two concurrent loans were made by REA and CFC to electric cooperatives in Georgia and Arkansas. By the end of fiscal year 1972, CFC reported loans of \$133.2 million.

The demand for REA financing, however, continued to escalate. Re-

quests for REA loans during fiscal year 1973 approached \$1.5 billion, and included a backlog of about \$585 million carried over from the previous year. The REA appropriation for electric loans that year was \$418 million.

To meet the need, methods were developed in REA whereby a large portion of the capital requirements of some power supply borrowers could be obtained from nongovernmental sources. An example was a June 1972 loan to 43 distribution cooperatives receiving power from the Associated Electric Cooperative of Missouri. The estimated cost for the project was \$240.6 million, or better than half the funds allocated to REA for its entire electric program that year.

A financing arrangement was worked out whereby REA loaned 30 percent of the requested funds, CFC provided 10 percent, and the remaining 60 percent was obtained from other sources, primarily a group of insurance companies.



The National Rural Utilities Cooperative Finance Corporation (CFC), an independent, self-help credit institution, was created by rural electric systems to provide themselves with a supplemental finance source. By investing their own funds in CFC as seed capital, the rural systems created a basis for additional credit utilizing funds borrowed from other sources.



Although most farms had service, there continued to be a need to upgrade the facilities that provided it.

On December 29, 1972, a Department of Agriculture press release announced "all REA loans will be made as guaranteed and insured loans under authority of Section 104 of the Rural Development Act of 1972."

"Loans will be made on an insured basis at 5 percent interest," it continued; "guaranteed loans will also be available to electric cooperatives where private capital is available on advantageous terms."

"An additional \$200 million in loan authority will be made available over and above current allocations," it added. "This will provide a total loan authority of \$618 million for electric loans. . . ."

Reaction by the public was swift, and primarily negative. More than 3,000 letters addressed to the White House or the Secretary of Agriculture were forwarded to REA for reply. They expressed the concerns of rural people that the REA program was being abandoned. In a letter to the President, NRECA Executive Vice President Robert Partridge summed the concerns of most: "We consider the elimination of REA loans and the substitution of insured and guaranteed loans under the Rural Development Act to be disastrous in terms of the viability of our rural electric systems and illegal application of present laws by the Department of Agriculture.

Some writers were more blunt. A man from Teigen, Mont., wrote the President: "You pulled a damn dumb move when you hiked the REA loan money from 2 percent to 5 percent. . . ." A woman from Pennsylvania wrote: "Are you for us or against us? Yes, we are the people who carry the lunch pails and pay the income taxes and we would like a little consideration on this. . . ."

Although public reaction to the change was overwhelmingly negative, REA's new status offered certain benefits. Funds for electric loans were boosted to the highest point in program history, and loan guarantees were authorized, for the first time, to help meet the growing need for financing large-scale projects.

On January 16, 1973, a bill was introduced in the U.S. Senate to

clarify that the credit authority Congress provided under the Rural Development Act of 1972 was intended as a "supplement" and not a "replacement" for the Rural Electrification Act of 1936. In his introductory remarks, Senator Hubert Humphrey said, "If this Administration or any administration can terminate an ongoing, statutorily authorized program, then no program is safe from the executive whim." On January 18, similar legislation, co-sponsored by more than 100 members, was introduced in the House of Representatives.

On February 22, 1973, the first three loans—one electric and two telephone¹—were made by REA under the Consolidated Farm and Rural Development Act. By May 11, 1973, REA had made 119 electric loans under that Act for \$230 million. Events which culminated on that day, however, changed the rural electrification program more drastically than at any time in its history. This time, the changes were welcomed by both REA and its borrowers.

The legislation introduced in January had evolved into a bill to amend the Rural Electrification Act to create a considerably strengthened, broader based, lending agency amply equipped to meet the financing needs of rural electrification for the foreseeable future.

P.L. 93-32 Broadens REA Programs

On the 38th anniversary of the establishment of REA, the President signed Public Law 93-32, which established a Rural Electrification and Telephone Revolving Fund in the U.S. Treasury as the source of REA loans. The Fund would be replenished through collections on outstanding and future REA loans and from the sale of borrowers' notes to the Secretary of the Treasury or the private money market.

The standard interest rate for REA loans was set at 5 percent, with 2-percent financing available for borrowers experiencing hardship or meeting specified criteria.

¹The Rural Electrification Act was amended in 1949 to authorize a telephone loan program.



Public Law 93-32, signed May 11, 1973, made drastic changes in the Rural Electric and Rural Telephone loan programs.



An agreement between REA and the Federal Financing Bank in the U.S. Treasury assured rural cooperatives of the availability of financing for large-scale projects.



A 900-megawatt coal-fired generating plant near Underwood, N. Dak., was the first project financed by REA under its loan guarantee authority.



Joint ventures with private power companies helped assure cooperatives of the continued availability of wholesale power.

The most significant change, however, was REA's authority to guarantee loans made by other lenders. Guaranteed loans would be made by any legally organized lending agency willing to hold and service the loan. The Congress reserved the right to limit the amounts authorized for loans and loan guarantees during any one year.

On May 24, 1973, the first REA loans were made under the amended Act to 17 rural electric cooperatives. Thirteen of the loans involved supplemental financing from CFC.

Although there was widespread interest—from both potential borrowers and potential lenders—in the newly authorized guarantee authority, REA cautiously studied all of the offerings by the financial community before establishing procedures. Another significant legislative event was soon to simplify the Agency's job and open the door to an assured source of financing for large-scale projects.

Federal Financing Bank Offers Outside Financing Source

On December 29, 1973—exactly 1 year after the announcement that the REA program would be funded under the Rural Development Act—the Federal Financing Bank (FFB) was created in the U.S. Department of Treasury to coordinate Federal and federally assisted borrowings from the public. On August 20, 1974, an agreement between REA and FFB gave rural electrification borrowers access to FFB financing.

Under its terms, REA agreed to act as agent for the FFB, and perform all loan servicing functions. In return, FFB agreed to purchase obligations guaranteed by the REA Administrator. Interest rates on FFB loans would be determined at the time each advance of funds was made, and be based upon the cost of money to FFB. Borrowers' dealings would be with REA, and all REA policies and procedures would be applicable to a guaranteed loan.

The way was now cleared to begin financing the large-scale projects deemed necessary to assure rural people adequate supplies of electric power.

On October 2, 1974, the first REA loan guarantees were announced to help finance a 900-megawatt coal-fired generating plant near Underwood, N. Dak. Two cooperatives—the Cooperative Power Association, Minneapolis, Minn., and the United Power Association, Elk River, Minn.—received loans of \$453.7 million to finance their respective shares of the project. With these loans the door to large-scale financing opened wide, and another new chapter began in REA.

In January 1975, a loan guarantee for \$513 million was approved to permit the Oglethorpe Electric Membership Corp., Atlanta, Ga., to purchase a 30 percent interest in two generating plants of the Georgia Power Company which would have a total output of 7,000 megawatts. And although not the first, the Oglethorpe project symbolized yet another major change in rural electrification financing.

Attitudes Change with the Times

From its earliest years, the rural electrification program was regarded in generally unfavorable terms by the investor-owned power companies. Although there were significant exceptions, rural electric cooperatives were generally opposed by investor-owned utilities, despite the fact that the cooperatives constituted the largest single market for company-produced wholesale power. With the expansion of the REA-financed generation and transmission program in the 1960's, and attempts to establish a Rural Electric Bank, opposition by the power companies reached a high point, and involved organized letterwriting campaigns, articles in national magazines, and intense lobbying in the halls of Congress.

During the 1970's, a combination of factors slowly changed these attitudes. Mounting pressures from environmentalists, higher construction costs, and the limited availability of financing sources stimulated power companies to seek out rural electric cooperatives as partners in planned projects. The cooperatives, on the other hand, were anxious to secure for themselves assured

sources of wholesale power which could be accomplished if they owned part of the generation facilities. As a consequence, a growing percentage of REA guarantee commitments went to rural electric cooperatives to finance their portion of a joint venture with private power companies. REA was able to report nearly \$5 billion in loans and loan guarantees committed to borrowers in 1976.

Rapid changes in the world's energy situation, accompanied by escalating construction and operation costs, soon necessitated a major restructuring of both policy and emphasis in the rural electrification program. In the previous 20 years, electricity usage had increased 300 percent, average use per consumer had doubled, and the trend was showing no signs of abating.

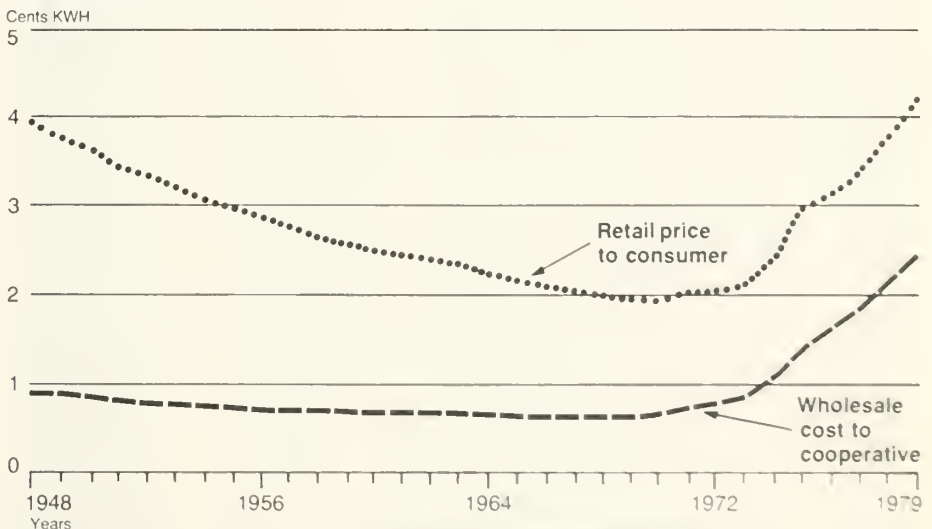
The cost of producing and supplying electric power was growing even more rapidly, however, than the demand for it. New generating facilities were costing \$800 to

\$1,200 per kilowatt to construct, compared with only \$200 per kilowatt in past years. Thus two major dilemmas confronted the rural electric systems: how to provide electric power for America's continued growth; and how to stabilize the rapidly escalating cost of that power.

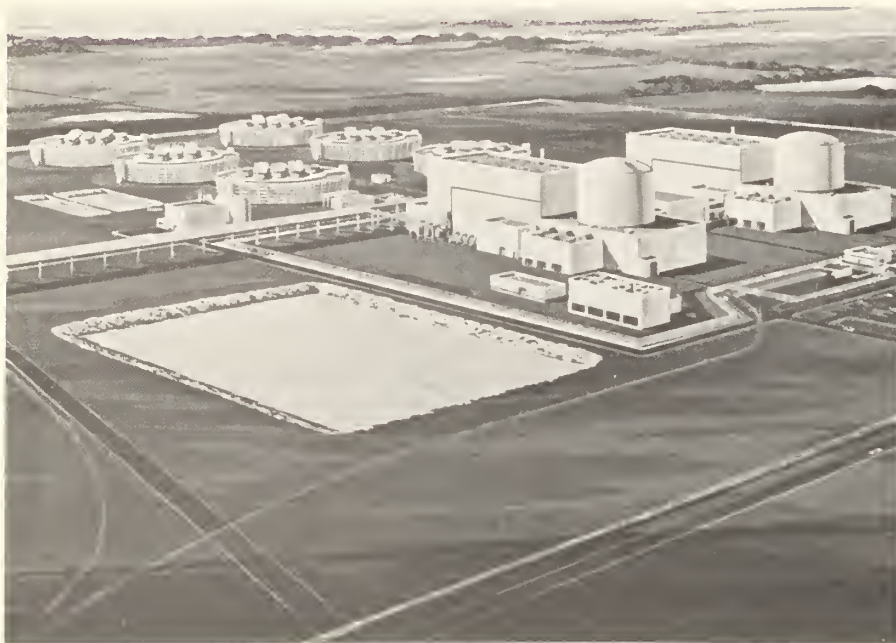
In 1974, REA borrowers were urged to eliminate promotional activities which tended to encourage greater use of energy, and to direct promotional efforts to the conservation of energy. In 1977, methods for reducing the demand for power during peak use hours of the day or season of the year were being strongly advocated.

That same year, arrangements were made by REA, the Farmers Home Administration (FmHA), and NRECA whereby FmHA loans could be made to consumers for "weatherizing" their homes. Weatherization included the addition of insulation, storm windows and doors, and other measures that helped conserve the energy used in heating or cooling.

Cost of Electricity



In the early 1970's, sharp increases in the cost of producing power triggered equally sharp increases in the retail price of power to consumers.



In 1979, two rural electric cooperatives purchased a 39-percent interest in this 2,300-megawatt nuclear plant.



An active energy conservation program is a requirement for all REA loan applicants.

On October 30, 1978, Robert W. Feragen became the ninth REA Administrator, and within a few weeks, outlined the expected direction of the rural electrification program: "The challenge for the balance of this century is greater than at any other time. Technologically, rural systems are mature, experienced utilities. They too must confront the problems associated with the development of large-scale new power supply . . . deal with inflation and other costs which increase the cost of electric power from 10 to 20 percent annually. In addition, we find that the owners of rural electric cooperatives are of a changing makeup. The new rural consumer has never been without electric power, and is primarily concerned with reliable, on-demand service."

A late arrival in the administration of President Carter, Feragen gave high priority to four major concerns: REA regulations, reorganization, energy conservation, and development of supplemental energy resources.

In January 1979, two significant events were to set the stage. Loan guarantee commitments of \$2.27 billion were announced to finance a 39-percent ownership by two electric cooperatives in a nuclear project being constructed by an investor-owned utility. In addition, each of the cooperatives—Associated Electric Cooperatives, Inc., of Springfield, Mo., and Western Farmers Electric Cooperative of Anadarko, Okla.—was to use part of the funds to construct a coal-fired steam generating plant. The two systems were providing electric power for 62-member distribution systems which served over 560,000 consumers in six States.

The emphasis on coal and nuclear fuels exemplified by these guarantees was one approach to insuring future supplies of energy. Another—conservation of existing resources—was to be reemphasized by REA within the week.

REA Requires Conservation Program

On January 31, REA announced its new energy conservation policy, developed after nearly 6 months of study and research and after several

opportunities for comment and discussion had been afforded all electric borrowers. All future applications for distribution loans would be required to include: 1) a copy of a policy approved by the board of directors on energy conservation; 2) a report of the efforts of the borrower to conserve electric energy in the operation of its headquarters and other facilities; and 3) a report describing the borrower's efforts to assist its members to make the most efficient use of energy. The latter category also required a workplan and budget for the scheduled activities.

Although REA had been encouraging conservation for several years and many rural systems had ongoing programs, this was the first REA *requirement* for such actions. Its purpose was to insure that the resources owned by borrowers would be used to the maximum extent before the construction of additional facilities became necessary.

An aggressive program of conservation which included home energy audits or advice based on visits to homes or businesses was also an excellent opportunity to improve the person-to-person relationship between cooperative staff and members. These visits, it was felt, would help the cooperative to develop an understanding by its members of important facts concerning the operation of the cooperative, such as retail rates, the cost of wholesale power, future plans of the cooperative, and membership opportunities and obligations.

By the end of 1979, REA could announce that the energy conservation measures taken over the past several years were bearing fruit. A survey of 600 systems showed a dramatic downturn in the kilowatt-hour sales growth rate. There was only a 2.9-percent rate of growth during 1979, compared with a 6.3-percent growth rate in 1978, and an 8.33-percent growth rate in 1977.

Home Weatherization Loans Made Available

A policy approving low-interest financing by electric borrowers for home weatherization and other energy conservation measures was

announced in March 1980. Borrowers were encouraged to make low-interest loans directly to their member-consumers for caulking; weatherstripping; the insulation of walls, ceilings, and floors; storm windows and doors; thermostats; and attic ventilation fans. Funds for these loans would be made available by rescheduling borrowers' principal payments on their notes to REA.

In March 1980, the REA staff was reorganized to focus attention on the specific concerns of distribution and power supply borrowers, and on the development of alternative energy resources. Separate power supply and distribution divisions were established to achieve efficiencies in the face of limits on staff additions and a new Energy Management and Utilization Division created to explore and provide leadership in the development and effective utilization of supplemental energy sources. Projects to be investigated for possible REA financing included the utilization of wind and solar power, low-head hydro, fuel cell, bio-mass conversion, and related facilities to generate electric power.

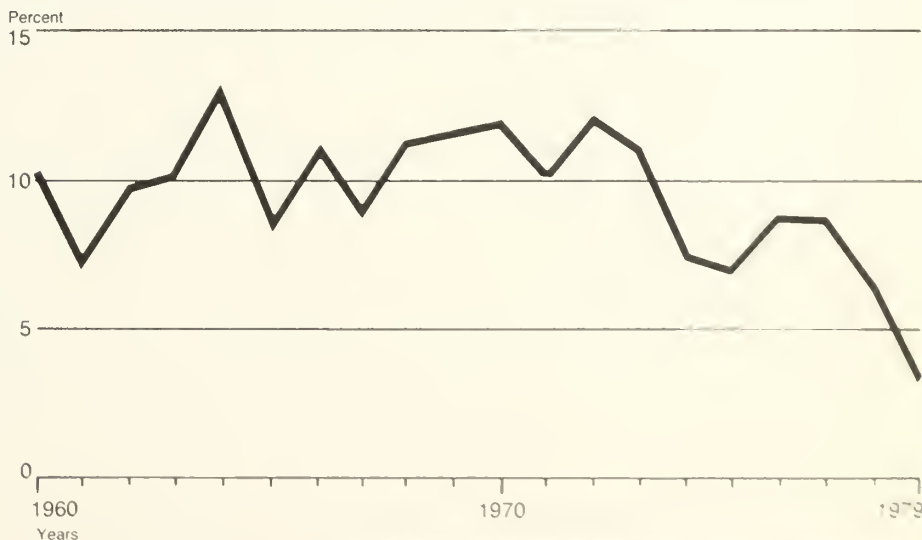
One of the problems encountered by rural electric systems in

developing these types of projects was the difficulty in obtaining financing for feasibility studies.

REA requested and obtained from the Comptroller General an opinion as to the availability of financing for studies under the Rural Electrification Act. The Comptroller General informed the Administrator that, in his opinion, the REA Administrator had the authority to make loans for the purpose of studying the feasibility of projects, for licensing, and for other early costs associated with initiating energy-producing projects.

Within a few months REA was to be among the first lenders in the Nation to approve loans for the supplemental energy program. In October 1980, REA announced the funding of 35 studies to determine the feasibility of small-scale hydroelectric projects to be located in 12 States. These were primarily for installing generating facilities at existing damsites. In addition, loans for studies of the feasibility of plants using wood chips and peat as fuel to generate electricity were announced. Funding for construction of these projects could come from the REA-insured or -guaranteed loan programs, or from other non-REA sources.

Percent Change in KWH Sales



Energy conservation programs of rural electric systems paid off in sharply reduced energy consumption.



The development of supplemental energy sources is actively supported by REA, including financing of feasibility studies.

During REA's first 45 years, the member-owned electric systems have proved themselves efficient and financially responsible organizations. They have proved themselves capable of generating, transmitting, and distributing electric power on an area-wide basis to even the most thinly populated parts of the country. When the need called for it, they have constructed and operated highly complex generation and transmission systems—frequently in close partnership with the private sector of the electric power industry. In addition, they have contributed in a substantial way toward the economic development of the areas they serve, and set an example for all utilities in the conservation of energy.

REA-financed systems have made a world-recognized record in providing service to rural areas. They have become a permanent part of the energy production and distribution industry in the United States. Their role in the future will be even greater than in the past.

Program Progress

By the close of fiscal year 1980, REA had approved \$14.7 billion in direct loans, and \$20.8 billion in loan guarantees for large-scale power projects. More than 30 million rural people were being provided electric service by the 1,098 organizations financed by REA, which included 981 cooperatives, 54 public power districts, 37 other public bodies, and 26 electric companies in 46 States. These organizations were operating over 1.9 million miles of line.

The standard interest rate for REA loans was 5 percent with a 2-percent rate available only to borrowers meeting special statutory criteria. Loans guaranteed by REA bear interest at rates agreed upon by the borrower and the lender. Of the \$35.5 billion loaned through September 30, 1980, only \$44,478, or less than 0.0125 percent, had been written off as uncollectible.

Appendix
REA “Firsts”

- First Electric Loans (July 22, 1935)
Crisp Farmers Co-op, Cordele, Georgia
Boone County REMC, Lebanon, Indiana
Volunteer Electric Co-op, Decatur, Tennessee
City of Dayton, Dayton, Tennessee
- First Electric Loans under RE Act (May 21, 1936)
Florida Public Service Company, St. Petersburg, Florida
Farmers Mutual Electric Company, Geneseo, Illinois
Illinois Rural Electric Company, Winchester, Illinois
Menard Electric Cooperative, Petersburg, Illinois
Glidden REC, Glidden, Iowa
Nishnabotna Valley REC, Harlan, Iowa
The Cooperative Electric Power & Light Company, Inc., Iola, Kansas
Lewis County REC Association, Lewistown, Missouri
Yellowstone Valley Electric Cooperative, Inc., Huntley, Montana
Johnson County MC, Raleigh, North Carolina
Baker Electric Cooperative, Inc., Cando, North Dakota
Clay-Union Electric Corporation, Vermillion, South Dakota
Trempealeau Electric Cooperative, Arcadia, Wisconsin
Grand Valley Rural Power Lines, Inc., Grand Junction, Colorado
Rural Electric Convenience Cooperative, Auburn, Illinois
Tri-County Electric Cooperative, Portland, Michigan
Runestone Electric Association, Alexandria, Minnesota
Edgecombe-Martin County EMC, Tarboro, North Carolina
- First Energization of Electric System (November 8, 1935)
City of Dayton, Dayton, Tennessee
- First Energization of Co-Op (February 15, 1936)
Monroe County Electric Power Association, Amory, Mississippi
- First Power Supply Loan (December 29, 1936)
Two federated power co-ops in Iowa, later merged into Cornbelt Power Cooperative, Humboldt, Iowa
- First Loan for Nuclear Power Plant (May 14, 1956)
Rural Cooperative Power Association, Elk River, Minnesota
- First Long-Term Loans Made Concurrently by REA and CFC (February 16, 1971)
North Arkansas Electric Cooperative, Inc., Salem, Arkansas
Washington County Electric Membership Corporation, Sandersville, Georgia
- First Guarantee Commitment Approved (February 6, 1974)
United Power Association—Cooperative Power Association, Minnesota
- First Guarantee of Loan from Federal Financing Bank (October 2, 1974)
UPA—CPA
- First Advance of Funds under Guarantee Program Oglethorpe EMC, Atlanta, Georgia (January 16, 1975)
- First Firm Interconnection Between United States East and West Power Grids (December 8, 1976)
David A. Hamil Intertie, Stegall, Nebraska
- First Loan to Determine Feasibility of Wood-Fueled Generation (Aug 26, 1980)
French Broad EMC, Marshall, North Carolina

Appendix Highlights of Rural Electrification

1935

April 8

President signs Emergency Relief Appropriation Act of 1935. It includes rural electrification as one of 8 categories of projects.

May 11

Executive Order No. 7037 creates Rural Electrification Administration, under authority of Emergency Relief Appropriation Act.

May 20

Morris L. Cooke is appointed first Administrator of REA.

August 7

President's Regulation No. 4 establishes REA as a lending agency.

1936

January

Senator George W. Norris of Nebraska and Rep. Sam Rayburn of Texas introduce bills to establish new Rural Electrification Administration.

May 20

President signs Rural Electrification Act of 1936.

December 29

REA approves first loans to 2 federated power cooperatives, both in Iowa, later merged into Cornbelt Power Cooperative, Humboldt, Iowa.

1937

February 15

REA drafts the Electric Cooperative Corporation Act, a model State law for formation and operation of rural electric co-ops.

February 23

John M. Carmody is appointed REA Administrator.

1938

January 10

Federal court upholds right of five distribution co-ops to organize a federated cooperative to generate electric power for members.

October 1

In Iowa, REA Farm Equipment Tour begins its 4-year trek across the Nation to acquaint rural people with applications of electricity on the farm.

1939

July 1

REA transferred to the U.S. Department of Agriculture under Reorganization Plan II.

September 26

Harry Slattery is appointed REA Administrator.

December 31

Average monthly kilowatt-hour consumption on REA-financed lines reaches 50 during December.

1940

June 30

More than 30 percent of U.S. farms are receiving central station electric service.

September 12

Loan approved to serve millionth rural consumer.

1941

June 30

REA-financed systems number 732 in 45 States . . . REA assists in supplying electric power to new military installations.

December 19

REA moves its headquarters to St. Louis, Mo., to free Washington office space for war agencies.

1942

March 19

National Rural Electric Cooperative Association is organized in Washington, D.C.

July 1

Borrowers halt mass construction because of wartime material shortages. . . . Efforts of REA borrowers and power companies boost percentage of electrified farms to 38.3.

1943

January 1

War Production Board eases restrictions to permit borrowers to build short extensions to farmers who need electricity to increase production.

December 24

Nearly 53,000 farmers ruled eligible by WPB county war boards to receive short-line extensions from REA borrowers during year.

1944

September 21

President signs Pace Act, extending life of agency indefinitely and changing amortization schedule and interest rate on all REA loans.

1945

February 1

REA publishes preliminary report "Rural Electrification After the War" outlining a 5-year program of expansion.

May 12

WPB issues first of several orders, removing major restrictions on line construction.

June 30

Claude R. Wickard is appointed REA Administrator.

September 27

Secretary of Agriculture calls REA back to Washington.

1946

May 23

REA loan provides for service to 2 millionth consumer.

June 30

Administrator reemphasizes "area coverage," noting that many more borrowers adopted principle during fiscal year. . . . First loans are approved to serve sparsely settled areas in Great Plains and West. . . . New consumers being connected at rate of 26,000 per month.

1947

May 22

Administrator reports that 2½ million farm families and 2 million other rural consumers still are without electric light. . . . Sixty percent of unelectrified farms, he says, are east of the Mississippi.

June 30

Borrowers connect two consumers per minute during fiscal year. . . . Thirty-three new systems energized. . . . About 3½ million farms receiving service.

1948

November 10

REA approves loan to provide electric service to 3 millionth consumer.

1949

June 30

During fiscal year . . . funds advanced pass \$1 billion mark.

October 28

President signs H.R. 2960, amending Rural Electrification Act to provide for a rural telephone loan program.

1950

January 1

Area coverage pledge is made part of REA loan contract.

June 30

More than 77 percent of all U.S. farms are receiving central station electric service.

September 8

President signs Defense Production Act, and REA borrowers again face wartime material controls.

1951

June 30

REA estimates 16 percent of farms still dark. . . . REA borrowers now serving 3.5 million consumers. . . . Average farmer on REA lines uses 146 kilowatt-hours per month.

1952

June 30

Twelve percent of Nation's farms still unelectrified. . . . REA borrowers are operating more than 1,000 energized systems.

1953

April 29

Ancher Nelsen appointed Administrator. . . . Henry County REMC, Newcastle, Ind., becomes first electric borrower to pay off loan, out of earnings.

June 30

Census reports less than 10 percent of farms without central station service.

December 31

Net worth of all REA electric borrowers passes \$200 million mark.

1954

February 3

REA institutes simplified loan procedure ("short form") for borrowers who can meet stringent financial requirements.

September 12

REA officials and co-op leaders explore atomic energy possibilities with staff members of Atomic Energy Commission.

1955

January 1

First REA borrower reaches monthly average power usage of 1,000 kilowatt-hours (Lincoln Electric Cooperative, Davenport, Wash.)

June 15

Rural Electrification Act amended to revise formula for State allotment of electrification loan funds.

1956

May 14

REA approves first loan for conventional components of nuclear power plant, to Rural Cooperative Power Association, Elk River, Minn.

June 26

David A. Hamil appointed REA Administrator.

June 30

Payments made ahead of schedule by borrowers approach \$100 million mark.

1957

April 18

REA approves largest single electric loan to date, \$18,620,000, to Dairyland Power Cooperative, LaCrosse, Wis.

June 30

Five percent of farms are now without central station electric service.

July 1

Total number of consumers receiving service from REA-financed lines passes 4.4 million.

1958

March 19

President directs Secretary of Agriculture "to accelerate necessary construction and purchase of materials and equipment under already approved loans."

April 11

In response to President's request, REA inaugurates stepped-up sales campaign.

April 30

Total electric repayments pass billion dollar mark.

May 31

Largest single generating unit financed by REA, 100,000-kilowatt steam plant, goes into operation near Lexington, Nebr.

Appendix Highlights—continued

June 27

REA approves contract between Atomic Energy Commission and Elk River, Minn., co-op for operating reactor power plant.

June 30

REA borrowers are serving more than 4.5 million consumers.

1959

May 11

REA begins 25th year, with 1,030 electric systems energized.

1961

March 3

Norman M. Clapp appointed Administrator.

June 15

REA approves largest loan to date: \$60.2 million to G&T cooperative in Indiana.

October 9

REA receives one billionth dollar repaid on the principal of electrification loans.

1962

May 8

REA approves G&T loan to Basin Electric Power Cooperative, Bismarck, N. Dak., for first generating plant to be fired by lignite coal.

June 20

New Mexico rancher is 5 millionth consumer to receive REA-financed electric service.

1963

January 1

Budget recommendation for \$425 million in loan funds, highest in REA history, is submitted to Congress.

June 28

REA approves \$30.4 million G&T loan in Missouri to enable cooperative to put into effect major power pooling arrangement.

1964

May 25

Total loan payments by electric borrowers pass \$2 billion mark.

October 30

REA approves \$51 million G&T loan to Dairyland Power Cooperative for 300,000-kilowatt generating plant—largest single-unit plant to be financed by REA to date.

1966

October 25

Joint REA-Borrower Cash Management Program announced to defer all postponable construction and step up advance repayment to minimize net cash demands on U.S. Treasury.

1967

June 13

REA announces 50 billion kilowatt-hour input by borrowers in fiscal 1966, highest on record; average consumer uses 708 kWh a month.

October 20

REA borrowers, electric and telephone, pass \$3 billion mark in loan repayments.

1968

July 1

In fiscal year 1968, REA borrowers reduced cash expenditures of U.S. Treasury by \$142.8 million in Joint REA-Borrower Cash Management Program.

September 6

REA approves loans for part ownership by three cooperatives in Vermont Yankee Nuclear Project near Vernon, Vt., first arrangement of its kind involving REA borrowers.

October 17

REA approves \$5 million loan to Alaska Village Electric Cooperative, Inc., Anchorage, Alaska, to bring first-time electric service to 20,000 Alaskans—Indians, Eskimos, and Aleuts—in 59 remote villages.

October 25

REA approves largest loan to date: \$97 million for G&T to Basin Electric Power Cooperative, Bismarck, N. Dak.

1969

January 24

David A. Hamil first Administrator to be appointed to second term.

April

The National Rural Utilities Cooperative Finance Corporation (CFC) incorporated to provide supplemental financing for rural electric systems. Owned and controlled by its members, CFC is funded by membership fees, proceeds from the sale of its securities, and margins from its lending operations.

April 7

Washington staff reorganized to provide "one point of contact" for borrowers through Area Offices.

May 2

Interest payments by REA borrowers pass billion-dollar mark.

September 1

The 6 millionth consumer is added to REA-financed electric lines.

September 11

REA approved \$15.1 million loan to new rural electric cooperative, Mt. Wheeler Power, Inc., Baker, Nev., to serve last "power desert" in continental U.S., a 12,800-square-mile area.

1971

February 16

First two long-term loans made concurrently by REA and CFC.

May 7

Rural Telephone Bank created by amendment to the Rural Electrification Act to provide supplemental financing for REA telephone borrowers.

1972

June 1

REA announces largest loan day—"seed money" loans of \$110 million for \$365.6 million of generating and transmission facilities in Kentucky and Missouri.

June 30

REA completes most eventful year: largest number of loans (467); second highest total amount loaned (\$438.3 million); and highest dollar amount of advances (\$418.5 million).

December 29

Authority for REA loans moved from Rural Electrification Act to Rural Development Act. Loan guarantees authorized. Interest rate for loans set at 5 percent.

1973

February 22

First 3 RD Act loans made.

May 11

P.L. 93-32 established Revolving Fund in U.S. Treasury as source of REA loans; set standard interest rate at 5 percent; retained 2 percent for specified borrowers. Loan guarantee authority provided.

May 24

First loans made under Revolving Fund to 17 borrowers.

November 1

Largest loan advance to date—\$29 million—made to Associated Electric Co-op, Missouri.

December 29

Federal Financing Bank (FFB) established to coordinate Federal borrowings, provide loan funds for Federal programs.

1974

June 6

\$34.5 million loan advance becomes largest in REA (Buckeye Power, Ohio).

August 20

REA/FFB agreement gives rural electric systems access to FFB financing.

October 2

First loan guarantees of \$453.7 million help finance participation by 2 rural electric systems in 900 MW coal-fired generating plant.

1975

January

Loan guarantee of \$513 million permits Oglethorpe E.C. (Ga.) to purchase 30 percent interest in 7,000 MW generating plant.

1976

December 8

First firm interconnection between eastern and western power grids in U.S. made by two REA-financed cooperatives.

December 17

\$1 billion in loan guarantee commitments made to Missouri Basin Power Project.

1977

February 8

REA establishes Energy Conservation Committee.

February 28

REA, FmHA, and NRECA announce Home Weatherization loan program to be financed by FmHA for consumers served by REA borrowers.

March 22

First 3 co-ops sign "Weatherization" loan agreements.

1978

October 30

Robert W. Feragen sworn in as REA Administrator.

1979

January 22

\$1.4 billion for Missouri project is largest single loan guarantee to date.

January 31

Energy conservation program required in all loan applications from distribution borrowers.

February 13

Susan T. Shepherd becomes first woman Deputy Administrator.

1980

January 31

Energy Management Utilization Division created to explore feasibility of financing generation projects utilizing alternative energy sources.

March 5

REA lets borrowers defer loan payments—use funds to finance home weatherization by consumers.

March 5

Survey of 600 REA-financed systems shows dramatic downturn in kWh sales growth—2.9 percent growth in 1979 compared with 6.3 percent in 1978.

August 6

First REA financing of feasibility study to explore use of alternative energy source for power generation.

1981

August 6

Harold V. Hunter sworn in as REA Administrator

EXECUTIVE ORDER

- - - - -

ESTABLISHMENT OF THE RURAL ELECTRIFICATION ADMINISTRATION.

By virtue of and pursuant to the authority vested in me under the Emergency Relief Appropriation Act of 1935, approved April 8, 1935 (Public Resolution No. 11, 74th Congress), I hereby establish an agency within the Government to be known as the "Rural Electrification Administration", the head thereof to be known as the Administrator.

I hereby prescribe the following duties and functions of the said Rural Electrification Administration to be exercised and performed by the Administrator thereof to be hereafter appointed:

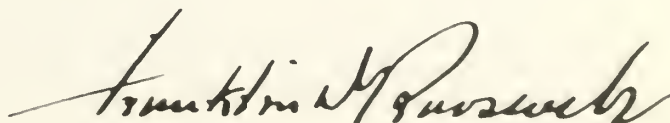
To initiate, formulate, administer, and supervise a program of approved projects with respect to the generation, transmission, and distribution of electric energy in rural areas.

In the performance of such duties and functions, expenditures are hereby authorized for necessary supplies and equipment; law books and books of reference, directories, periodicals, newspapers and press clippings; travel expenses, including the expense of attendance at meetings when specifically authorized by the Administrator; rental at the seat of Government and elsewhere; purchase, operation and maintenance of passenger-carrying vehicles; printing and binding; and

incidental expenses; and I hereby authorize the Administrator to accept and utilize such voluntary and uncompensated services and, with the consent of the State, such State and local officers and employees, and appoint, without regard to the provisions of the civil service laws, such officers and employees, as may be necessary, prescribe their duties and responsibilities and, without regard to the Classification Act of 1923, as amended, fix their compensation: Provided, That in so far as practicable, the persons employed under the authority of this Executive Order shall be selected from those receiving relief.

To the extent necessary to carry out the provisions of this Executive Order the Administrator is authorized to acquire, by purchase or by the power of eminent domain, any real property or any interest therein and improve, develop, grant, sell, lease (with or without the privilege of purchasing), or otherwise dispose of any such property or interest therein.

For the administrative expenses of the Rural Electrification Administration there is hereby allocated to the Administration from the appropriation made by the Emergency Relief Appropriation Act of 1935 the sum of \$75,000. Allocations will be made hereafter for authorized projects.



The White House,

May // , 1935.

[PUBLIC—No. 605—74TH CONGRESS]

[S. 3483]

AN ACT

To provide for rural electrification, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby created and established an agency of the United States to be known as the "Rural Electrification Administration", all of the powers of which shall be exercised by an Administrator, who shall be appointed by the President, by and with the advice and consent of the Senate, for a term of ten years, and who shall receive a salary of \$10,000 per year. This Act may be cited as the "Rural Electrification Act of 1936".

SEC. 2. The Administrator is authorized and empowered to make loans in the several States and Territories of the United States for rural electrification and the furnishing of electric energy to persons in rural areas who are not receiving central station service, as hereinafter provided; to make, or cause to be made, studies, investigations, and reports concerning the condition and progress of the electrification of rural areas in the several States and Territories; and to publish and disseminate information with respect thereto.

SEC. 3. (a) The Reconstruction Finance Corporation is hereby authorized and directed to make loans to the Administrator, upon his request approved by the President, not exceeding in aggregate amount \$50,000,000 for the fiscal year ending June 30, 1937, with interest at 3 per centum per annum upon the security of the obligations of borrowers from the Administrator appointed pursuant to the provisions of this Act or from the Administrator of the Rural Electrification Administration established by Executive Order Numbered 7037: *Provided*, That no such loan shall be in an amount exceeding 85 per centum of the principal amount outstanding of the obligations constituting the security therefor: *And provided further*, That such obligations incurred for the purpose of financing the construction and operation of generating plants, electric transmission and distribution lines, or systems shall be fully amortized over a period not to exceed twenty-five years, and that the maturity of such obligations incurred for the purpose of financing the wiring of premises and the acquisition and installation of electrical and plumbing appliances and equipment shall not exceed two-thirds of the assured life thereof and not more than five years. The Administrator is hereby authorized to make all such endorsements, to execute all such instruments, and to do all such acts and things as shall be necessary to effect the valid transfer and assignment to the Reconstruction Finance Corporation of all such obligations.

(b) There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, for the fiscal year ending June 30, 1938, and for each of the eight years thereafter, the sum of \$40,000,000 for the purposes of this Act as hereinafter provided.

(c) Fifty per centum of the annual sums herein made available or appropriated for the purposes of this Act shall be allotted yearly by the Administrator for loans in the several States in the proportion which the number of their farms not then receiving central station electric service bears to the total number of farms of the United States not then receiving such service. The Administrator shall, within ninety days after the beginning of each fiscal year, determine for each State and for the United States the number of farms not then receiving such service.

(d) The remaining 50 per centum of such annual sums shall be available for loans in the several States and in the Territories, without allotment as hereinabove provided, in such amounts for each State and Territory as, in the opinion of the Administrator, may be effectively employed for the purposes of this Act, and to carry out the provisions of section 7: *Provided, however*, That not more than 10 per centum of said unallotted annual sums may be employed in any one State, or in all of the Territories.

(e) If any part of the annual sums made available for the purposes of this Act shall not be loaned or obligated during the fiscal year for which such sums are made available, such unexpended or unobligated sums shall be available for loans by the Administrator in the following year or years without allotment: *Provided, however*, That not more than 10 per centum of said sums may be employed in any one State or in all of the Territories: *And provided further*, That no loans shall be made by the Reconstruction Finance Corporation to the Administrator after June 30, 1937.

(f) All moneys representing payments of principal and interest on loans made by the Administrator under this Act shall be covered into the Treasury as miscellaneous receipts, except that any such moneys representing payments of principal and interest on obligations constituting the security for loans made by the Reconstruction Finance Corporation to the Administrator shall be paid to the Reconstruction Finance Corporation in payment of such loans.

SEC. 4. The Administrator is authorized and empowered, from the sums hereinbefore authorized, to make loans to persons, corporations, States, Territories, and subdivisions and agencies thereof, municipalities, peoples utility districts and cooperative, nonprofit, or limited-dividend associations organized under the laws of any State or Territory of the United States, for the purpose of financing the construction and operation of generating plants, electric transmission and distribution lines or systems for the furnishing of electric energy to persons in rural areas who are not receiving central station service: *Provided, however*, That the Administrator, in making such loans, shall give preference to States, Territories, and subdivisions and agencies thereof, municipalities, peoples utility districts, and cooperative, nonprofit, or limited dividend associations, the projects of which comply with the requirements of this Act. Such loans shall be on such terms and conditions relating to the expenditure of the moneys loaned and the security therefor as the Administrator shall determine and may be made payable in whole or in part out of income: *Provided, however*, That all such loans shall be self-liquidating within a period of not to exceed twenty-five years, and shall bear interest at a rate equal to the average rate of interest pay-

able by the United States of America on its obligations, having a maturity of ten or more years after the dates thereof, issued during the last preceding fiscal year in which any such obligations were issued: *Provided further*, That no loan for the construction, operation, or enlargement of any generating plant shall be made unless the consent of the State authority having jurisdiction in the premises is first obtained. Loans under this section and section 5 shall not be made unless the Administrator finds and certifies that in his judgment the security therefor is reasonably adequate and such loan will be repaid within the time agreed.

SEC. 5. The Administrator is authorized and empowered, from the sums hereinbefore authorized, to make loans for the purpose of financing the wiring of the premises of persons in rural areas and the acquisition and installation of electrical and plumbing appliances and equipment. Such loans may be made to any of the borrowers of funds loaned under the provisions of section 4, or to any person, firm, or corporation supplying or installing the said wiring, appliances, or equipment. Such loans shall be for such terms, subject to such conditions, and so secured as reasonably to assure repayment thereof, and shall be at a rate of interest equal to the average rate of interest payable by the United States of America on its obligations, having a maturity of ten or more years after the dates thereof, issued during the last preceding fiscal year in which any such obligations were issued.

SEC. 6. For the purpose of administering this Act and for the purpose of making the studies, investigations, publications, and reports herein provided for, there is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, such sums as shall be necessary.

SEC. 7. The Administrator is authorized and empowered to bid for and purchase at any foreclosure or other sale, or otherwise to acquire, property pledged or mortgaged to secure any loan made pursuant to this Act; to pay the purchase price and any costs and expenses incurred in connection therewith from the sums authorized in section 3 of this Act; to accept title to any property so purchased or acquired in the name of the United States of America; to operate or lease such property for such period as may be deemed necessary or advisable to protect the investment therein, but not to exceed five years after the acquisition thereof; and to sell such property so purchased or acquired, upon such terms and for such consideration as the Administrator shall determine to be reasonable.

No borrower of funds under section 4 shall, without the approval of the Administrator, sell or dispose of its property, rights, or franchises, acquired under the provisions of this Act, until any loan obtained from the Rural Electrification Administration, including all interest and charges, shall have been repaid.

SEC. 8. The administration of loans and contracts entered into by the Rural Electrification Administration established by Executive Order Numbered 7037, dated May 11, 1935, may be vested by the President in the Administrator authorized to be appointed by this Act; and in such event the provisions of this Act shall apply to said loans and contracts to the extent that said provisions are not inconsistent therewith. The President may transfer to the Rural Elec-

trification Administration created by this Act the jurisdiction and control of the records, property (including office equipment), and personnel used or employed in the exercise and performance of the functions of the Rural Electrification Administration established by such Executive order.

SEC. 9. This Act shall be administered entirely on a nonpartisan basis, and in the appointment of officials, the selection of employees, and in the promotion of any such officials or employees, no political test or qualification shall be permitted or given consideration, but all such appointments and promotions shall be given and made on the basis of merit and efficiency. If the Administrator herein provided for is found by the President of the United States to be guilty of a violation of this section, he shall be removed from office by the President, and any appointee or selection of officials or employees made by the Administrator who is found guilty of a violation of this Act shall be removed by the Administrator.

SEC. 10. The Administrator shall present annually to the Congress not later than the 20th day of January in each year a full report of his activities under this Act.

SEC. 11. In order to carry out the provisions of this Act the Administrator may accept and utilize such voluntary and uncompensated services of Federal, State, and local officers and employees as are available, and he may without regard to the provisions of civil-service laws applicable to officers and employees of the United States appoint and fix the compensation of attorneys, engineers, and experts, and he may, subject to the civil-service laws, appoint such other officers and employees as he may find necessary and prescribe their duties. The Administrator is authorized, from sums appropriated pursuant to section 6, to make such expenditures (including expenditures for personal services; supplies and equipment; lawbooks and books of reference; directories and periodicals; travel expenses; rental at the seat of government and elsewhere; the purchase, operation, or maintenance of passenger-carrying vehicles; and printing and binding) as are appropriate and necessary to carry out the provisions of this Act.

SEC. 12. The Administrator is authorized and empowered to extend the time of payment of interest or principal of any loans made by the Administrator pursuant to this Act: *Provided, however,* That with respect to any loan made under section 4, the payment of interest or principal shall not be extended more than five years after such payment shall have become due, and with respect to any loan made under section 5, the payment of principal or interest shall not be extended more than two years after such payment shall have become due: *And provided further,* That the provisions of this section shall not apply to any obligations or the security therefor which may be held by the Reconstruction Finance Corporation under the provisions of section 3.

SEC. 13. As used in this Act the term "rural area" shall be deemed to mean any area of the United States not included within the boundaries of any city, village, or borough having a population in excess of fifteen hundred inhabitants, and such term shall be deemed to include both the farm and nonfarm population thereof; the term "farm" shall be deemed to mean a farm as defined in the publications

of the Bureau of the Census; the term "person" shall be deemed to mean any natural person, firm, corporation, or association; the term "Territory" shall be deemed to include any insular possession of the United States.

SEC. 14. If any provision of this Act, or the application thereof to any person or circumstances, is held invalid, the remainder of the Act and the application of such provision to other persons or circumstances shall not be affected thereby.

Approved, May 20, 1936.

REA Administrators and Deputy Administrators 1935-1981

REA Administrators

Morris L. Cooke
1935-1937

John M. Carmody
1937-1939

Harry Slattery
1939-1945

Claude R. Wickard
1945-1953

Ancher Nelsen
1953-1956

David A. Hamil
1956-1961

Norman M. Clapp
1961-1969

David A. Hamil
1969-1978

Robert W. Feragen
1978-1981

Harold V. Hunter
1981-



Cooke



Carmody



Slattery



Wickard



Nelsen



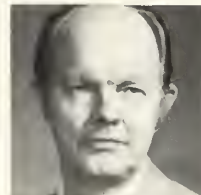
Hamil



Clapp



Hamil



Feragen



Hunter

REA Deputy Administrators

John M. Carmody
1936-1937

Robert F. Craig
1940-1943

William J. Neal
1943-1949

George W. Haggard
1949-1951

William C. Wise
1951-1953

Fred Strong
1954-1958

Ralph J. Foreman
1958-1961

Richard A. Dell
1961-1966

Richard M. Hausler
1966-1969

Everett C. Weitzell
1969-1973

George P. Herzog
1973-1974

David H. Askegaard
1975-1977

Robert W. Feragen
1978

Susan T. Shepherd
1979-1981

Jack Van Mark
1981-



Carmody



Craig



Neal



Haggard



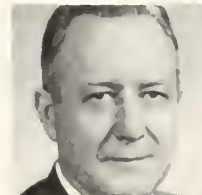
Wise



Strong



Foreman



Dell



Hausler



Weitzell



Herzog



Askegaard



Feragen



Shepherd



Van Mark

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