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MAY, 1970

ON THE COVER

Our cover this month shows one of the five assembly lines at the new Carrier Air Conditioning Company plant near McMinnville. Story on this welcome new industry in Tennessee appears on Pages 6-7.
Volunteer Views

by J. C. Hundley
Executive Manager, TECA

Just a few days after this issue of The Tennessee Magazine is delivered to you, an important "birthday" will be observed. May 11th marks the 35th anniversary of existence and service by the Rural Electrification Administration (REA) which was created by Executive Order of President Franklin D. Roosevelt on May 11, 1935. What it has meant to all Americans during the past 35 years would, literally, fill volumes, but at least a brief generalization was made recently by Colorado Rancher David A. Hamil, now serving his second tenure as REA Administrator and himself a pioneer in the rural electrification program in his home state. Said Hamil: "There has never been anything like the REA program in the history of this country. Rural people, in cooperation with their Federal Government, developed something new under the sun."

Today, 35 years after its founding, REA is still doing—and doing well—the job that it set out to do: financing electric systems to serve rural and small town people on an area coverage basis. As of today, REA has loaned money to more than 1,000 such systems—most electric cooperatives—to serve more than 20-million people. This represents electrical service to 98.4% of all homes, farms and businesses in the areas served by rural electric co-ops, a far cry from the approximately 11% (less than 4% in Tennessee) who were receiving central station electric service when REA came into existence in 1935. This gross overlooking of our rural areas up to 1935 is best emphasized by the fact that central station generation and transmission came into existence more than a half-century before (53 years before, to be exact) and that by 1935 electricity in the rural areas was almost entirely confined to rural residents who lived close to existing private power company services and who were able and willing to shell out unreasonable sums of money for these services.

REA's first year of existence was a frustrating one since it was begun as part of a general program of unemployment relief under authority of the newly established Emergency Relief Appropriation Act, but three months later President Roosevelt established REA as strictly a lending agency since it would have to use skilled labor as opposed to providing employment for the unskilled. The following year, 1936, saw Congressional enactment of the Rural Electrification Act which extended REA for 10 years and gave preference in making loans to local non-profit organizations. In 1944, Congress amended the Act, continuing REA's loan authority indefinitely. The act was further amended in 1949 to include a rural telephone loan program.

The greatest value of the REA-financed program has been in terms of providing a higher standard of living in the home, on the farm and in other vocational pursuits for those who choose to live in other than our overcrowded metropolitan areas. The rural housewife has been "emancipated" and her husband has found more than 400 uses for electricity.

Opponents of REA, who once spurned the agency's loan funds to provide rural area coverage and who have been criticizing ever since the electric co-ops who did accept such loans, must cringe at the fantastic repayment record established by the co-ops. Of the $6.3-billion borrowed to date, more than $3.1-billion has been repaid with interest. And over the 35-year history of REA, the agency has been subjected to repayment losses of only 6-thousandths of 1-percent of the amount loaned. Additionally, the Federal Government has reaped tens of millions of dollars in additional taxes due to the manufacture and purchases of billions of dollars worth of electric appliances and implements plus additional personal income due to the availability of electricity through electric co-ops.

The rural electrification program, thanks to the cooperation between electric co-ops and their banker, REA, has not only brought rural America out of its darkness, but made, and continues to make, rural living and rural opportunities even more attractive.
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MAY, 1970
Carrier Brings State Economic Glad Tidings

By John Stanford

Aerial view of the new McMinnville plant of Carrier Air Conditioning Company.

If success may properly be described as the fruit of hard work, then the folks around McMinnville, Tennessee and Warren County can truthfully say that they have harvested an industrial plum.

This big business bonanza is a major plant installation of the Carrier Air Conditioning Company, one of the largest manufacturers of packaged (self contained) air conditioning systems in America. It is located near the community of Morrison, Tennessee, some seven miles from McMinnville, on a sprawling 260 acre site. More than 13 acres of this site are under the roof of this huge manufacturing facility, with 460,000 square feet being devoted to production area, 106,000 square feet to warehouse space and the remaining 32,000 square feet to office facilities. Total investment by the Carrier Company for building and equipment to date is some $12.5 million.

April appears to be the magic month for the new Carrier plant. Construction was begun on it in April of 1968 and was completed one year later, in April 1969. It was also in April of 1969 that Carrier completed and shipped the first of its large, packaged air conditioners from this new Warren County plant, right on schedule.

During the first year of its operation this Carrier plant, which came into being at least in part to provide manufacturing relief to the company's principal facility in Syracuse, New York, produced 21 different types of packaged equipment, built in 88 different capacity sizes and ranging in cooling capacities from 7.5 to some 80 tons. Sizes and capacities range from comparatively small air-cooled condensers to large, complex one-piece air conditioners, combination heating-cooling units, heat pumps and the latest in outdoor air-cooled water chilling packages. There are five production lines in the plant to accommodate the assembly of the various sizes of equipment, all relating to central systems as no window-type coolers are made by Carrier in Tennessee. The largest of these will take care of units from 30 feet long, 8 feet wide and 6 or more feet high, units which contain more cubic footage than many mobile homes.

And never let it be said that this new Carrier plant doesn't practice the same air-conditioning that it preaches. This mammoth installation is cooled with centrifugal refrigeration machines which supply 2,646 tons of capacity, enough to comfortably cool 800 average sized homes.

Since construction, hiring, training and manufacture were all taking place at least part of the time from April 1968 until one year later, there were only 115 hourly and 130 salaried employees on the payroll when the first packaged unit rolled off the Carrier assembly lines in April 1969. Since that time, however, employment has been rapid and steady, to the point that there are now almost 1,100 employees employed full time at Carrier. Annual payroll amounts to some $7 million which means, economically, that this huge industry is worth an estimated $50 million a year to the Warren and surrounding counties area. About one-half of all employees live in Warren County.

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This press, with a crunch of 400 tons, is one of the many new machine tools used at the McMinnville plant of Carrier Air Conditioning Company to produce packaged air conditioners in cooling capacities from 7½ to over 75 tons.

Although production at Carrier is running on or near the schedule hoped for at this stage of its industrial life, there are even greater marks in the offing. The plant has been operating at an
output of 125 units per day, 29,400 units per year. Full capacity calls for 210 units per day, 49,300 units per year. All units are shipped by way of three truck lines and the L&N Railroad.

In addition to its huge assembly capacity, the plant makes its own cooling and condensing coils, sheet metal panels and chassis parts, interconnecting tubing and assemblies, and electrical control boxes with parts and wiring. Quality Control is rigidly maintained in the parts shop, at sub-assembly and after final assembly.

Air-cooled condensing units await shipment from the Carrier Air Conditioning Company plant near McMinnville.

Although the payroll is the most "felt" economic benefit of the Carrier installation, it is by no means the only one, nor is it confined to the local area. For example, the plant uses on a yearly basis some 25 million pounds of steel, 3 million pounds of copper tubing and 4.5 million pounds of aluminum tin stock.

Each day the plant uses 250,000 gallons of water and, each month, it uses some 1.5 million pounds of aluminum tin stock.

Three million pounds of copper will be used each year by the McMinnville plant of Carrier Air Conditioning Co. Here the rolls of copper tubing are unreeled, straightened and formed into coils for air conditioning units.

Bottles of water under pressure is of absolute importance in the attraction of new industries to rural and small town areas.

Among the key officials of the more than 1,000 persons now on the Carrier payroll, and many of whom are members of Caney Fork Electric Co-op, are Plant Manager William E. Hood, Personnel Manager Clyde Briggs and Employment Manager Chuck Mullican.

The Carrier Air Conditioning Company is a most welcome industrial addition to Tennessee's ever-growing economy.

As indicated earlier, we're Plumbing happy to have this fine, refreshing company in the Volunteer State.

This machine, known as a horizontal tube expander, is one of the largest and most unusual devices used by Carrier Air Conditioning Company to produce air conditioning units at its new McMinnville plant.
Volunteers of the Pleasant View Community Center, Mrs. Imogene Heathman and Mrs. Ann Moore, use their chest freezer for preparing large quantities of food used at the center and in their fair booths.

Did you ever wonder how your next door neighbor ever gets so much done with her time? Or find yourself thinking she must be a magician to cram as many activities as she does into a single day? Relax, she's no magician; she's a planner, especially when it comes to the family meals.

Feeding her family wisely and well is one of a homemaker's most important jobs, but it's often more time-consuming than it need be. I do not offer any magical tricks in this article, but you will find some ideas for conserving time in the kitchen.

Just about every homemaker uses frozen foods whether they come from the store or are foods she freezes from her garden. The modern homemaker who has a freezer can take advantage of special buys and buy in quantity. Do two weeks' marketing in one trip. It takes only a little longer to shop for two weeks than for a few days.

Most recipes can be doubled or tripled in minutes more than are needed to cook small amounts. You can freeze leftovers, extra portions, make desserts ahead of time and prepare for the holidays and parties.

Once you swing more to freezing your own cooking and baking certain questions arise.
1. How do I package and wrap for the freezer?
2. What special preparations are required for different kinds of foods?
3. What are some special things to avoid and special things to do?
packages in the refrigerator, but only for a short time. You should plan to freeze small amounts at a time so you can freeze them quickly.

Another special thing to remember is to plan your freezer space. Use your freezer wisely. Don't overstock on commercially frozen foods which can be obtained at any time. Compare prices and buy on special sales. Allow space for short time storage or leftovers, casseroles, and special foods for parties. Always have on hand at least one or two complete meals for surprise guests or a sudden crisis.

After planning the use of your freezer, remember it is wise to keep your freezer stocked and rotating — use first things first. Using your freezer every day provides the most benefits from this "investment in better living."

We are all interested in a few tips on things that we can use our freezer for.
1. Tired of that ham? Cut it in small pieces and grind it in the blender. Now the ham is ready to use in so many ways.
2. Have some leftover nuts? Freeze 'em!
3. When you have waffles, the leftover batter need not be thrown out. Bake all the batter and freeze the waffles. They come out tasty and crisp after they have been popped into the toaster.
4. Keep an extra pound of butter in the freezer.
5. Frozen sandwiches are great time-savers for lunch boxes or parties. All breads freeze well, but some fillings do not. Select sliced cooked meats, cold cuts, cheese, meat or fish spreads, peanut butter. Crisp salad type vegetables lose their crispness during freezing. As mayonnaise tends to separate, use softened butter instead.
6. Freeze leftover onion, green peppers or parsley in plastic bags for future use.
7. Potato chips and popcorn freeze well.

Perhaps many of you already knew these freezer tips, but frequently I see new ideas for using the freezer that I am not taking advantage of and perhaps you are not either. Learn to make the most of your freezer. Think of it as one of your everyday food preparation tools, not merely as a means of food storage.

In order to enjoy freezer living, one must have one of the several styles of the freezer—chest, upright, or refrigerator-freezer combinations. Freezer temperature should be zero degrees or lower. Maximum food storage tables are based on these temperatures.

One of the best features on freezers today is the frost-free feature. Not only does it eliminate that dreaded job of defrosting, but no space is wasted due to frost formation. And, the packages are easier to read.

Other convenience features offered in freezers are removable shelves, an interior light, lift-out baskets, locks and an automatic ice maker.

In fact, one of the newest innovations in the side-by-side refrigerator freezer is the water and ice dispenser on the freezer door. This style of freezer is convenient for the homemaker who has limited kitchen space, yet wants good freezer storage.

So, for convenience, economy, saving of time and labor let the freezer give you dividends in your investment to better eating! Make it real!
The Farmer's Life

Today

By Thomas Clark
Electrification Advisor
Chickasaw Electric Cooperative

Here is an example of the equipment which makes necessary the installation of the 16' doors.

The Industrial Revolution of the 19th Century, which had transformed life in cities the world over, scarcely touched life on farms of the United States of America. As a result, the American farmer at the dawn of the present century was earning his living in a way that had changed but little since the earlier days when the first colonies were established along the Atlantic seaboard. The tools he used were simple and ancient: the wheel, the lever, the block and tackle, and the plow. For most tasks, he could draw only on his strength or that of horses and other animals. His children studied by the dim light of a kerosene lamp; his wife was a slave to the wood stove and washboard.

For people in the cities and towns, life was different. Electricity for power and lights was available to them and was among the attractions which pulled people away from the farms and into the cities. The notion that electricity generated at a central station could be distributed to every farm in the United States took hold of men's minds slowly.

Today, in 1970, the farmers' life has been changed at a fast rate over the last decades. Electricity and mechanization have made the farmer's work much easier.

Just as an example, we would like to share with readers of this magazine the life of a farmer in the Chickasaw Electric Cooperative area. Mr. Cooper Skelton farms close to 1,000 acres in a small community Northwest of Somerville, in West Tennessee. When Mr. Skelton purchased his farm in 1953, there were fifty people working 200 acres of land and at present there are four who work 950 acres. This farmer credits his success to one most important thing: that of having all the land in production, meaning no idle land. Another credit would be engaging in double crops where one could double on his profits. When they gather wheat in June, they follow with soybeans. Soybeans, at the moment, seems to be the best crop, and an average of forty bushels per acre is gathered over the entire farm. Other land is cultivated for cotton, corn and wheat. These products are trucked to the Memphis market and sold.

Another interesting project on this farm is the testing and planting of 12 different varieties of cotton. Cooperating with the Farm Bureau and the University of Tennessee, Mr. Skelton feels this is a very worthwhile project. Farmers from various communities in the county benefit from this cotton testing. The object is to find which variety will produce best in this county. Mr. Skelton prepares the land, fertilizes it, and U.T. people plant.
the different varieties. As the cotton grows, the owner cares for the crop. In the fall, the cotton is gathered by the owner and the university staff. Each variety is gathered separately and taken to Jackson to the University of Tennessee experiment station. The cotton is ginned for further testing. Another important event is the Field Day in August for farmers to come and share in this variety testing.

In order for four people to operate this 1,000 acre farm efficiently, there has to be mechanization and plenty of it. Sixteen years ago, the small 30 and 40 horsepower tractors, a 2-row planter, mules, and some hand labor were the farmer’s tools. Today there is no hand labor and the farm is 100% mechanized. Every farm needs a shop set up to take care of the minor repairs. Just recently a new steel 24 x 36 building has taken the place of an old store building used in the past for shop work and repair. The building is well-insulated allowing for quite a bit of work to be done on winter nights. The door is 16 x 16 allowing for tall and wide equipment, both present and future. All repair work can be done efficiently as far as the lighting is concerned. With five fluorescent fixtures, holding two-8’ lamps in each fixture, there’s enough lighting for welding, drilling, using the cutting torch or whatever the job might be. Plenty of electrical outlets are located in proper locations throughout the shop.

So, as this farm has grown, the farmer’s needs have been met to best serve his fellowman. Not just here in a small community in West Tennessee, but all over this nation.

Rural electricity still has a vital part to play in meeting the demands of today’s mechanized farms. Free help and advice in planning electrical services for any farm installation are available from your local cooperative, Mr. Farmer. Don’t make mistakes when you can have professional guidance, free for the asking.

A necessary item in any farm shop is the welder.

Charles Cox, partner and son-in-law of Mr. Cooper Skelton, is shown repairing a planter.

A modern farm shop is a must in most of today’s operations.

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How's your electrical wiring?

If your lights dim when the furnace kicks on, or if a fuse blows when you plug in the iron, chances are your electrical wiring is overloaded.

Consult your electrical contractor immediately, for outmoded wiring is not only a costly nuisance—it's dangerous. One thing you shouldn't do is call in a self-styled expert, for improper and inadequate wiring can be expensive.

Before the contractor arrives, there are two things you can do to help him provide the right kind of wiring for both the present and the future. Make a list of outlets and switches you think are needed. Don't neglect outside outlets and lighting. They can add to the safety, convenience, and pleasure of your home.

Decide what appliances you may purchase in the future and where you probably will put them. This will help the electrician determine the size of wires, number and kind of circuits, and whether added capacity is needed. This planning ahead saves money by providing flexibility that reduces the need for frequent and costly changes.

The Rural Electrification Administration in the U.S. Department of Agriculture says the basic requirements of a well planned wiring system are safety, convenience, adequacy, flexibility, and efficiency. Keep these factors in mind if you are revamping your house wiring.

Also be sure to plan enough lighting. It saves time, eysight, and wear and tear on the disposition. The minimum lighting load recommended for the home is three watts to the square foot. More lighting is needed for reading or working.

The location of outlets is vitally important. They should not be more than 12 feet apart and no point along the floorline should be more than six feet from an outlet. You'll need more outlets in some areas than in others. This is true in any room where a number of electric devices are used. Let's say that the master bedroom has twin beds with electric blankets and that the night table between these accommodates an electric clock, a table lamp and a small radio. There must be receptacles for five appliances. Therefore, there should be three duplex outlets along the headboard wall.

In the kitchen, laundry and workshop, there should be individual 240-volt circuits for each major appliance, such as a range, clothes dryer, water heater, and large air conditioner. There also should be 20-ampere 120-volt circuits in each of these areas with outlets for appliances such as washer, ironer, dishwasher and disposer, refrigerator, freezer, and heater.

A further word about switches: To save steps and avoid the hazards of falls in hallways, on steps or over toys in dark rooms, be sure to have three-way and four-way switches to permit the control of lights from two or more locations. If you cannot turn a light on when you enter a dark area, or cannot turn one off when you leave a lighted area, your house is "underswitched." You will find that silent mercury switches last longer and are worth the extra cost.

Each circuit has a protective device located in the panel box. It can have either fuses or circuit breakers. The purpose is to break the circuit in case of an overload and prevent the overheating of wires. Be sure that your electrician labels each circuit on the panel door so that you can identify the circuit if trouble develops.

Finally, replacing fuses with coins or larger fuses most certainly doesn't solve the problem of overloading wiring.
You can reduce production costs and farm drudgery by turning farm jobs over to low-cost electricity.

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These are only a few of the jobs that electricity does to increase profits or reduce farming costs.

Put low-cost electricity to work on your farm. See us for details.

Tennessee’s Rural Electric Co-ops
This page is reserved for the young folks. We will pay one dollar for each poem or drawing published. ALL WORK MUST BE ORIGINAL. Drawings should be in black, and drawn on white, unlined paper. Tell us your age, address, and Electric Co-op, and

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HERBICIDES CONTROL WEEDS, GRASS IN CORN

You don’t have to cultivate corn to control weeds, reminds D.M. Gossett, University of Tennessee extension associate agronomist. Several different herbicides or chemicals are now available that will control the weeds and grass in corn.

"Research has shown that corn yields are just as high when you use herbicides as they are when you cultivate to control weeds," Gossett says. "Effective control is important and many farmers are doing a more effective job with chemicals than they are by cultivating. In some cases, such as where johnsongrass is a problem, you may need chemicals and cultivation for effective control."

If you are depending on cultivation alone, it must be done at timely intervals before weeds and grass become established. Cultivate shallow, about two inches deep, to avoid pruning off the corn roots.

The University of Tennessee recommends the use of either Alachlor ("Lasso"), atrazine ("AAtrex"), simazine ("Princep"), butylate ("Sultan") and 2,4-D as pre-emergence treatment for corn. You should consider the kinds of weeds you have, method of applying the chemical, crop rotation, and other factors before selecting one of these herbicides.

Atrazine ("AAtrex"), 2,4-D and Linuron ("Lorox") are recommended for post-emergence use on corn.

All of these herbicides have been tested on experiment stations for several years and have been effective when properly used, Gossett concludes.

VEGETABLES NEED A GOOD SEEDBED

One of the best recommendations for vegetable growers this time of year is to take time to do a thorough job of preparing a seedbed. You can prevent a lot of problems later on.

"During the first dry spell in spring, the urge to plant vegetable seeds is hard to resist," says Robert D. Freeland, University of Tennessee Extension assistant horticulturist. "Rain is usually forecast for the next day and getting the vegetables planted in rough, cloddy ground. In rough ground, soil may not completely surround the seed, Freeland explains. Contact with the soil is needed to provide an even supply of moisture during germination. The germination process may begin after a warm spring shower, but the rough soil may dry out fast. The germinating seedling is left high and dry and may die before another shower.

"Also, it is easier to control weeds in a good stand," Freeland says. "A good stand will help control weeds by shading, but the grower who has provided a good seedbed probably kept the weeds from going to seed last fall."

Don’t work the soil too wet cautions the horticulturist. It is usually dry enough to work if it crumbles instead of forming a ball when squeezed in the hand. Then spend time in thoroughly preparing the seedbed. It will be time well spent.

UNCOVERED FEED BUNK CAN DROP DAIRY PROFIT

Many dairymen in Tennessee are losing thousands of dollars each year by not having their feed bunks covered believes Herbert Holt, University of Tennessee Extension assistant dairy husbandman.

"If forage is fed in uncovered feed bunks on rainy days, the amount of dry matter intake will be affected," says Holt. "This will result in lower milk production."

A moisture content of 65 to 70 percent is about ideal for corn silage, Holt points out. However, if the ideal silage is fed in bunks which are not covered, it is not unusual for the moisture content to increase to 80 percent on rainy days.

In comparing the feeding of the ideal, 70 percent moisture silage, and the 80 percent moisture silage that has been rained on in the feed bunk, Holt says that it is possible for a cow fed from an uncovered bunk on rainy days to produce 20 pounds less milk on each of the rainy days. Economically, if the price of milk were $5.50 per hundred pounds, there would be a loss of approximately $55 in milk production for a herd of fifty cows each rainy day.

"Dairymen who are feeding silage in an uncovered bunk should realize why milk production drops on rainy days," Holt adds. "The amount of income lost could pay for covering the feed bunk within a short period of time."

YORK SOYBEAN RECOMMENDED

The University of Tennessee has added the York soybean variety to the 1970 recommended list of soybeans, reports R.E. Cobble, U-T Extension assistant agronomist.

"York was released jointly in 1967 by the Agricultural Experiment Stations of Virginia, Maryland and North Carolina," Cobble says. "The results of the University of Tennessee state-wide variety tests show that York has yielded well and has good resistance to lodging."

In Tennessee tests York matured about the same time as Dare and about ten days later than Hill. York has good seed-holding qualities but is not quite as good as Lee. It also has good resistance to purple seed stain.

Tennessee certified seed of York is now available through local seed retail stores, Cobble points out. Foundation seed for the production of Registered and Certified seed is available through the state seed stocks organization, Tennessee Seed Producers, Inc., 412 Murfreesboro Road, Nashville, Tennessee.
If you've got an old battery generator sitting out in the garage — don't throw it away. There's a growing possibility you may need it.

All across the country, electric utilities are getting caught with their kilowatts down. After years of speculation and warnings, it now seems certain that many Americans are facing a long, dark summer.

Right now the power crisis appears to be centered in the larger cities of the East, but its effects could be felt by rural electric members in some areas before the summer is out.

New Yorkers got a warning recently from the power company that serves their city, Consolidated Edison. What the company told them was simply this: It looks like power will have to be rationed this summer in the big city. Brownouts, curtailments, voltage cuts — even blackouts — are in the offing.

Recently in the Nation's capital, Potomac Electric Power Company was forced to reduce voltage by as much as eight percent in order to prevent a complete blackout. The temperature on that day only went into the low 40's, causing concern about what will happen the first hot day of the summer when everyone starts turning on their air conditioners.

Charles Robinson, Jr., who is staff counsel to the general manager of the National Rural Electric Cooperative Association (NRECA) recently told Congressional committees that the nation is facing "what is certainly the most critical power shortage since World War II, if not the worst in the entire 82-year history of the industry."

Robinson, who is also an engineer, outlined some of the trouble spots:

- The Pennsylvania-New Jersey-Maryland Power Pool — The companies serving most of these three states were forced to cut voltage 11 times last summer. The companies face this summer with even less reserve capacity than last year and already have warned of possible brownouts.

- New York — Consolidated Edison also found it necessary to cut voltage by 8 percent last year and to appeal to the public to turn off air conditioners and other appliances. Con Edison has said that this summer it might have to resort to blacking out residential sections of the city on a rotating basis.

- Elsewhere — During the summer of 1968, the Chicago, Detroit, New York and New England areas had to cut voltage to prevent a blackout.

The chairman of the Federal Power Commission, John Nassikas, has told Congress that 22 major systems had reported 1969 summer reserves of less than 10 percent. Systems usually like to have 20 percent reserves in case a generating unit should break down.

Specifically, Nassikas mentioned the Southern Company System, which serves Alabama, Mississippi and Georgia, with reserves of only 1.6 percent; the Cleveland Electric Illuminating Company System, 3.1 percent reserves; and the American Electric Power Company, which serves parts of seven states stretching from Virginia to Indiana, with reserves of 5.1 percent.

The FPC later said that 39 out of the 181 major systems in the country had reserves this past winter of less than 10 percent.

Overall reserves for all the power systems in the country are expected to be about 16 percent this summer.

What the electric industry fears most of all is a prolonged heat wave. In the first place, hot weather cuts the efficiency of electric facilities — they can handle less power in hot weather than they can in cold. And kilowatts can't be stockpiled — they have to be produced at the moment they are used. If everyone turns their air conditioners on at once, there has to be enough generating capacity to supply all the power needed. If there isn't, then there's a chance of a "cascading" power failure similar...
to the one that blacked out a large portion of the Northeast a few years ago.

A cascading power failure starts when one plant is overloaded and is thrown out of service. That means there is just that many fewer kilowatts available and puts an added burden on other plants, causing them to drop off the line one by one. Utilities have formulated plans for meeting such situations. The first step is to cut voltage and—in effect—increase the number of kilowatts available. If the demand is still too great, appeals are made to industrial customers to voluntarily cut use. Then appeals are made to the general public to cut usage. If all this fails, the company involved may be forced to deliberately black out segments of its service area in order to keep up with the demand in other areas, as has been warned in New York.

Just how did the private power companies—who for years have told the American public they are "ready, willing and able" to supply all the power the nation needs—get into the fix they're in?

One admitted reason is poor planning. Many systems failed to anticipate the tremendous growth in demand, especially for air conditioning. Some have been caught in the embarrassing situation of urging their customers to install air conditioning, then having to ask them not to use them on the hottest day of the year. In Virginia, a power company (Virginia Electric and Power Company) has asked the state's regulatory commission for permission to charge its customers a "summer differential." The upsurge in home air conditioning has made usage by company customers much higher in the summer than in the winter. The company hopes to improve this situation by discouraging summer usage through higher rates. The same number of kilowatts will cost more from June through October than they will cost the rest of the year if the rates are approved. To the average air conditioned homeowner, it could mean an increase of from about $8 to $14 a month.

- Delays in getting new generating plants built is another major reason for the power crisis. For one thing, electric generator manufacturers are swamped with orders for new plants. On Jan. 1 of this year, a record total of 189.9 million kilowatts of new capacity was on order. That's equal to the output of nearly a hundred Grand Coulee dams. Also utilities are complaining that new equipment they get doesn't work right, causing shutdowns that add to the power shortage.

The industry also faces a critical shortage of coal, the prime fuel for the production of electricity. Another growing reason for the power shortage is the emerging concern for environmental protection. Power plants and needed transmission lines are under attack by conservationists in virtually every section of the country. The result is lengthy delays.

A plant desperately needed by Consolidated Edison has been tied up in litigation for several years. A hydro project on the Snake River in the west has been on-again, off-again for years. Rights-of-way disputes across scenic areas have delayed a vital transmission tie line between Con Ed and the Pennsylvania-New Jersey-Maryland power pool for three years.

And so it goes. From Maine to California, concerned conservationists are saying it's time to draw the line—we need to protect our environment more than we need more power.

The general manager of NRECA, Robert D. Partridge, believes that resolving this problem is one of the most important challenges facing the rural electrification program and the entire electric industry.

Partridge says the power industry must accept its responsibility for environmental protection. But he also believes that the American people will not accept the alternative of limiting power production.

"Our choice is not whether we shall enjoy the comforts of air conditioning. Our choice is whether we shall have warm or freezing homes, whether we shall have refrigerated food, whether we have rationing of electricity," he says.

"I believe we can have enough power to meet our needs and still have a clean environment. And I believe this nation must set itself upon a course to find out how it can accomplish this two-fold objective. We can be sure it won't come easily and that it will cost money—perhaps as much as our nation spent in harnessing the atom or in landing on the moon."

He has called for a massive research program aimed at (Continued)
The Power Crisis

bringing a plentiful supply of electricity in a clean environment."

Because rural electrics are largely dependent upon the nation's private power companies for their power, they likely will be caught up in the power crisis sooner or later.

During recent Congressional hearings a Senator asked Partridge what would happen if a power company were faced with a shortage and had the choice of meeting the needs of its retail customers or those of a wholesale customer such as a rural electric.

Under those conditions, Partridge said, "You don't have to be much of a prophet to predict who will be without electricity—we're going to come out on the short end."

Rural electric systems own only about 1½ percent of the nation's total generating capacity. As a result of power company opposition and a severe shortage of loan funds, needed new plants are not being built.

Rural electric generating systems in Kentucky, Arkansas, Iowa, Kansas and elsewhere are fast approaching the time when their existing plants may not meet the needs of their members.

Despite the evident need for power in most sections of the country, private power companies persist in their opposition to cooperative generating plants and continue to say they can supply all the power the rural electrics need.

A spokesman for an Indiana company recently repeated that claim before a Congressional committee. The company has been challenging construction and operation of a cooperative generating plant in Indiana for nearly nine years, saying in the courts and before commissions that it isn't needed.

But during a critical power shortage in the East and the Tennessee Valley in January, the plant was allowed to operate at full capacity for a week in order to supply power to TVA and help prevent a power disaster.

With conditions like these, rural electric leaders feel that the power companies should stop trying to keep rural electrics from building their own generating plants and get busy fulfilling their claims of being able to provide all the power the country needs.

If they don't, they may find themselves in worse shape than they were in World War II when their advertisements admonished:

"Don't waste electricity just because it isn't rationed."

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Members from most of Tennessee’s electric co-ops found the April Puzzle Corner a bit more difficult, judging from the number of entries, but practically all entries submitted were correct.

The puzzle concerned a shelf that was exactly filled with books of equal thickness. If the books had been one inch thinner, the shelf could accommodate six more books. If the books were one inch thicker, there would be no room for three books. How many inches long is the shelf?

The answer: 36 inches.

Winner of the April Puzzle Corner and $10 check from The Tennessee Magazine is Mike Carpenter of Route 5, Morristown, Tennessee, a member of Holston Electric Co-op, Rogersville.

Second and third place prizes of $5 go to Mrs. Larry Dunaway of P. O. Box 45, Bethel Springs, Tennessee, a member of Pickwick Electric Co-op, Selmer, and to Fred Roggli of Route 2, Decherd, Tennessee, a member of Duck River Electric Membership Corporation, Shelbyville.

And here is the Puzzle Corner for May:

The only child present in a room noticed that each man shook hands with each of the other men, while each woman kissed each of the other women present. If there are 15 handshakes and 21 kisses, how many people (not counting the child, who did not participate in either the handshaking or the kissing) were in the room?

Send name, address, and name of your electric co-op to:

Puzzle Corner
The Tennessee Magazine
P. O. Box 7232
Nashville, Tenn. 37210

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Your Electric Cooperative
Rural Electrification was the topic of conversation on Capitol Hill in Washington, D.C., during the week of April 13-17. Rural electric leaders from all across the Nation were in Washington, telling members of Congress of the major problems facing their electric cooperative systems.

Representing Tennessee at this Rural Electric Rally was T. O. Walker, director of public relations of the Tennessee Electric Cooperative Association. Walker was able to discuss with most of the Tennessee delegation three major problems that are facing the electric cooperatives today. They are: 1. Get the Bureau of Budget to release the $20-million in appropriated REA electric funds which has not been allocated for use this year. This is not new money; it has already been appropriated by Congress. 2. Get an increase to $745-million for electric loan funds for the fiscal year starting July 1. New lines and plant expansion are a must with the rapid growth through power demands of rural electric consumers. In Tennessee alone, with a loan backlog of $2,625,000 and loan applications to be submitted by June 30, 1971, $12,343,000 is needed to meet our growth. 3. Get removal of restrictions on the generation and transmission loan program—restrictions which are preventing loans from being made in the face of power shortages. This is so critical that we will be threatened this summer with brownouts and possibly blackouts.

Tennessee is most fortunate to have a Congressional delegation that has understood the needs and has supported the electric cooperatives' program. All electric cooperatives' memberships should be appreciative of this support, because, without it, some of you would still be without electricity.

Pictured on this page are the Senators and Congressmen who have supported the Rural Electric Cooperative program in Tennessee.
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