"Our electricity was turned off 36 hours . . "

"The company should reimburse me and everyone else for their mistake," the member wrote in haste just after the big December ice storm. It was obvious that she felt she had been discriminated against when she was out of power for 36 hours during the December 7-9 ice storm.

"You see," the writer explained, "we were told that the company could not spare anyone to pull the switch down the road from us."

Granted that the writer of this letter is a new member. She thinks she's a company customer instead of a cooperative member and she hasn't realized yet that a rural electric cooperative with fewer than three members per mile of line can't respond during a major outage like a big city utility can with its 40 or 50 customers per mile.

But, she should have realized from all the TV, radio and newspaper reports that the ice storm had devastated hundreds and hundreds of square miles, toppling trees and poles and breaking limbs and power lines, sending them crashing to the ground writhing and sparking, blowing fuses and tripping breakers along more than a thousand miles of line.

This report isn't timely anymore, of course. You won't be able to read it until the last week in January. But, the subject will come up again and again as the years come and go. Rural electric power lines are particularly vulnerable to weather and, when outages do occur, it takes some well-coordinated teamwork to get everybody's power back on again.

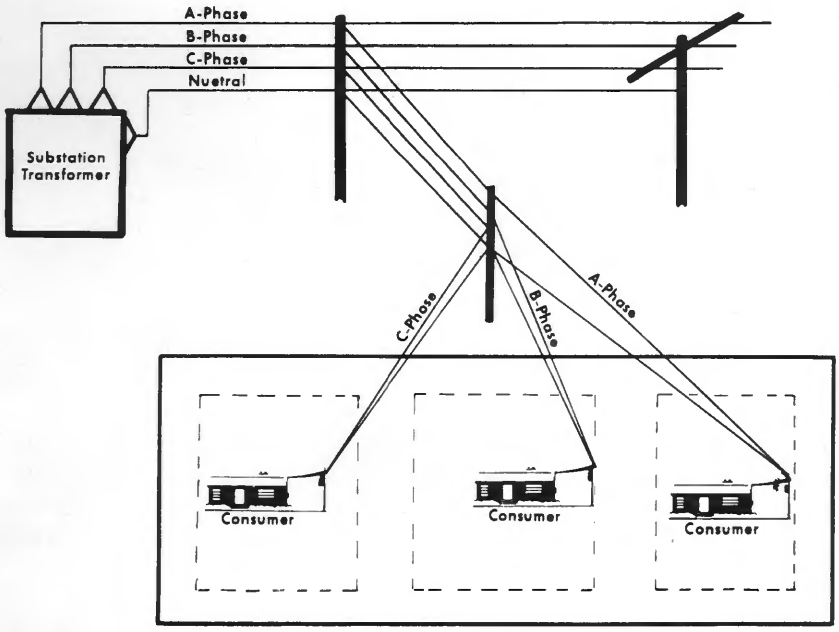
The rules are simple: Check with a neighbor or two before calling and then call only once if you're sure you're out of power. Report any line trouble you see and try to give its exact location. You may think you'll get your power back on sooner if you call again and again, but you won't. Just the opposite! You may actually **delay** the repair of your trouble! You may only help tie up EIPC's phone lines and prevent others from reporting really useful information about downed or broken lines and poles.

The top priority must be to get the greatest number of members back in service as soon as possible! After service has been restored at the substations and the main feeder lines have been repaired, individual outages are checked and repaired until all members are back in service.

Why couldn't just one of EIPC's line crews or one of the ten crews on loan from other cooperatives find a few minutes to pull one switch?

Well, the "Switch" was a circuit breaker and it had tripped because of several breaks along the line it protected. When the first outage calls were received at Paxton headquarters, it was determined that this breaker served only one branch circuit. Another breaker back toward the substation also was affecting this circuit as well as others that serve hundreds of members. It had to be repaired first or other repairs farther out the line wouldn't work.

EIPC's outage priority system has to favor the main feeder lines nearest the 14 substations. Fixing a break farther out on a line somewhere far away from a substation won't help anyone anyway if the feeder line supplying the branch line is also out.



How can your power be off while your nearest neighbor's is still on? Well, either of two reasons could apply: Your neighbor's power line may be supplied by an entirely different circuit, feeder line or substation that is unaffected by whatever is causing your outage. Or, you could be supplied by a different "phase" than your neighbor. The line for your phase could be broken somewhere or its breaker tripped while the other phases continue to function.

Use a timer on that engine block heater

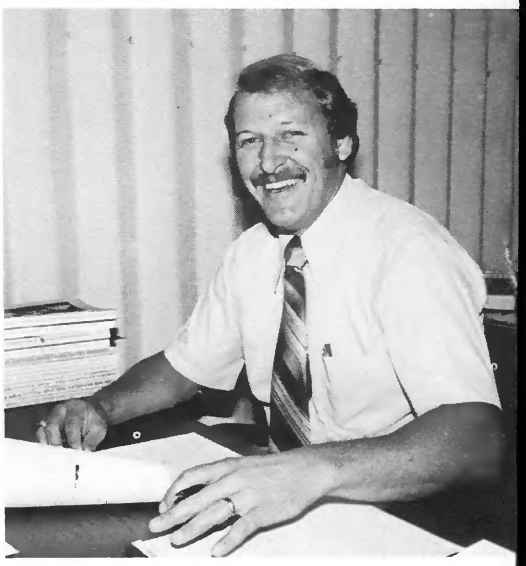
In east-central Illinois, winter temperatures can get down even below the minus 20 degree mark. And, nearly all of our farm members have tractors which they use one or two hours most every day during cold weather.

To help make sure the tractor will start on cold mornings, nearly all of these tractors have engine block heaters installed on them. The heater maintains heat in the engine for better starting.

Engine heaters will range in wattage from 1,000 watts up to 2,500 watts for large diesels. The manufacturers of engine heaters build thermostats into the units, but it has been proven—through test metering—that these thermostats seldom turn off on the coldest, windiest winter days.

We suggest and encourage members of EIPC to use a 24-hour time clock to turn tractor and other vehicle engine heaters on one or two hours before the vehicle is to be used. Experience shows that one hour is usually sufficient to warm an engine. Two hours may be necessary if it is extremely cold or if a unit is hard to start.

Dennis Keiser, AIEC Energy Utilization Specialist, works with electric cooperative personnel in matters relating to energy conservation, insulation and energy efficiency.



Energy conservation policy now an REA loan requirement

Changes in loan-making policies of the Rural Electrification Administration now call for each REA-financed electric cooperative to develop energy conservation policy and to implement it with adequate staff and funding.

"These policies suggest guidelines for rural electric systems to use in developing energy conservation programs," Agriculture Secretary Bob Bergland said, "but the basic decisions on how to carry out the programs will be left to the individual cooperatives." REA Administrator Robert W. Feragen added, "Evidence of such activities will be included as part of REA's loan application procedures."

A related REA policy developed in conjunction with energy conservation is one that outlines guidelines for rural electric systems to use in obtaining information for system planning and for forecasting REA loan fund requirements.

"These new policies were developed after extensive review of the energy conservation programs of more than 250 electric utilities," Feragen said, "and incorporate many of the suggestions received by REA from its borrowers."

(REA makes loans to finance electric and telephone facilities in rural areas, enabling more than 1,000 REA-financed systems—including 30 in Illinois—to provide service to over 29 million people in 46 states, Puerto Rico and the Virgin Islands.)

Alex Mercure, Assistant Secretary of Agriculture for Rural Development, said the REA conservation efforts are extensions of those of the Carter Administration and are not aimed at bringing about immediate reductions in the amount of power being provided to electric cooperative members. Instead, he said, the efforts are thought to be means to forestall the construction of major new generating projects through elimination of energy waste.

Delaying through energy conservation the need to add additional generating plant capacity can have an impact on slowing the rate of increase of consumer electric rates, since generating plant construction is one of the most significant factors affecting rates.

". . . the basic decisions on how to carry out the programs will be left to the individual cooperatives."

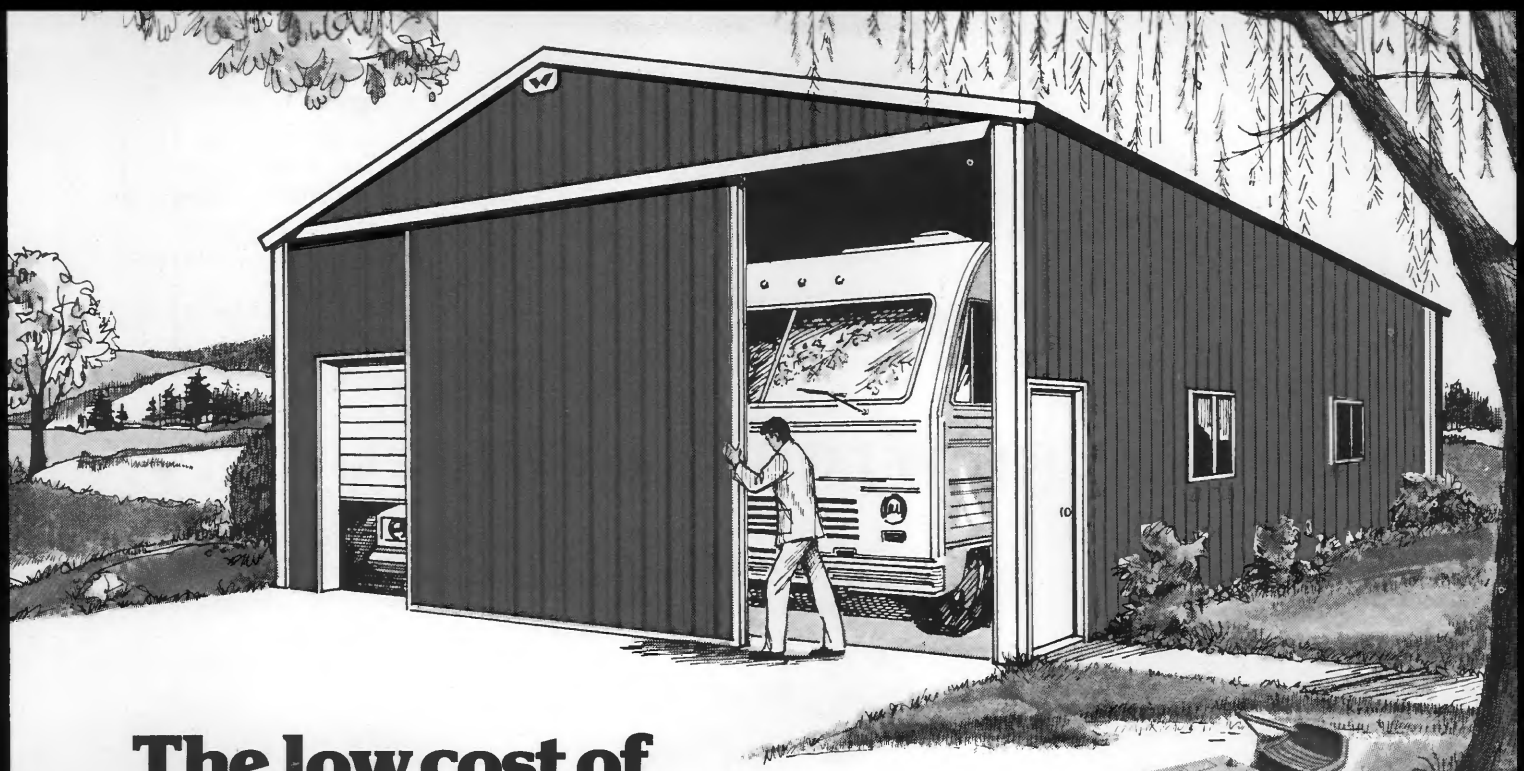
The heart of the REA policy on energy conservation is the guideline that a cooperative made up of 4,000 or more members should have one person working full time (or the equivalent time of several persons) to assist members to conserve energy. "If a cooperative has more than 4,000 members, the man-hours devoted to energy conservation should be appropriate to its work plan and objectives and consistent with the greatest number of members. This guideline would not require a cooperative of 16,000 to have four people working full time. It would require, however, an allocation greater than the time of one person," Feragen outlined in a memo. For cooperatives with less than 4,000 members, REA will give consideration to the pooling of resources with other organizations.

Future loan applications must include the following.

- a copy of the board's energy conservation policy,
- a report of borrower's effort to conserve energy in the operation of its headquarters and facilities, and
- a report describing the efforts of the borrower to assist its consumers to use energy most efficiently.

While the REA energy conservation guidelines are new, the emphasis on member awareness of wise, efficient use of electric energy has long been a top priority for electric cooperative staffs. And for many cooperatives, conforming to the new policy may

(Continued on page 24)



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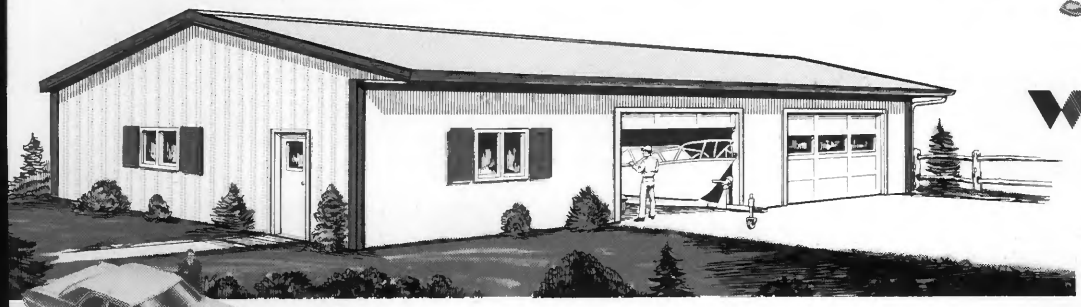

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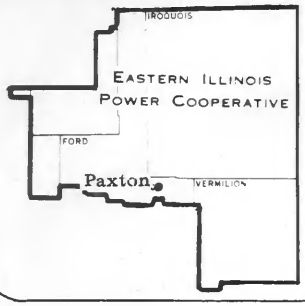

E.I.P.C. News

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EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

Two ice storms in one year?

Across the Manager's Desk

by D. L. Tachick, Manager

Two ice storms in one year!!

Late Saturday night, December 9, 1978, Eastern Illinois Power Cooperative had restored power to the last of 2,500 members who had reported outages during the 66-hour duration of the big December 7-9 ice storm.

At first, EIPC line superintendent Herschel Workman thought this storm wasn't going to be nearly as bad as the one that began 260 days earlier on Good Friday, March 24, 1978. But, about eight hours after the December 7 storm began, Workman changed his mind.

By the time the last outage was repaired Saturday night, more than a third of EIPC's 3,000 miles of line had been affected in one way or another; 20 men and 10 trucks from six Illinois cooperatives* had traveled to Paxton to help out; and all EIPC employees, including office, warehouse and garage employees, had been pressed into service during the hectic 66 hours. Some of them serviced trucks. Still others kept the cooperative kitchen supplied with coffee and doughnuts. ("I never would have made it on that midnight to eight shift if there wasn't any coffee," one very tired employee said early Friday morning.) One staff member served as a truck driver and groundman for a line crew. Another acted as radio dispatcher and another helped bring a rented truck from another state to Paxton.

At night, as the outage calls got fewer and fewer, office employees worked on maps of the sprawling service area, fixing the exact locations of breakers that were affected by the broken and downed lines that members had been reporting throughout the day. (This way, line crews would know as soon as they arrived early the next morning which breakers were out in their areas and they could go straight to the trouble spots without delay.)

Workman reported later how lucky EIPC members were to have those 20 extra men and 10 more trucks to help out. "I called our statewide cooperative association office in Springfield that Thursday morning and learned from general manager Tom Moore that our cooperative had been hit harder than most of them. Those Illinois cooperatives that weren't affected by the ice storm sent all the help they could and we had everyone back in service by Saturday night!"

Good communications are the key to fast restoration of service during a widespread general outage. This photo shows EIPC employees working in line superintendent Workman's office sorting outage reports (maybe one was yours) so that breaker locations could be determined and information classified and dispatched by radio to service crews. Shown are assistant engineer Don Forrest, Radio dispatcher Anna Elliott, accountant Delores Coplea and office clerk Betty Younker.

*Coles-Moultrie Electric Cooperative, Mattoon; Edgar Electric Cooperative, Paris; Illinois Rural Electric, Winchester; McDonough Power Cooperative, Macomb; Menard Electric Cooperative, Petersburg, and Western Illinois Electrical Cooperative, Carthage.

Help Stop Costly Vandalism

Our members have long been the most important part of our effort to maintain the highest possible degree of system efficiency at the lowest possible cost, and once again we turn to these thousands of members for aid in preventing a costly and totally unnecessary drain of your co-op's resources.

Criminal acts of vandalism, resulting in the annual loss of untold thousands of dollars in equipment and costing even more in service calls and labor, can only be prevented with the help of our members.

Our hundreds of miles of distribution lines simply can't be patrolled by our service personnel.

We are too few, but our members are everywhere. Remember, co-op equipment destroyed by vandals costs YOU money. Report any acts of vandalism that you see at once.

Metric System EASY ...for Kids!

There are seven basic units in the metric system. Three of these we already use: the second to measure time, the ampere to measure electric current, and candela to measure light intensity. The new ones that we'll have to learn are meter to measure length, gram to measure mass or weight, liter to measure volume, and degrees kelvin (or Celsius) to measure temperature.

Metric measurements, as our money system is, are based on the decimal system which involves multiples of 10. This makes it easy to convert from one unit to another. For example, there are 10 millimeters in a centimeter, 100 centimeters in a meter and 1,000 meters in a kilometer. To convert meters into kilometers, you simply divide by 1,000. That's much simpler than converting feet into miles by dividing by 5,280.

It will be much easier for children to learn the new system than it will for their parents. A promotion for a new metric reference card promises "A child can learn it in ten minutes; for an adult it would probably take half an hour."

Perhaps the reason it will take adults longer to learn the new system is that we are so accustomed to thinking of measurements in terms of the odd numbers that we worked so long and hard to memorize when we were children, such as 36 inches in a yard, 16 ounces in a pound and four pecks in a bushel. When you stop to think about it, our old system doesn't make much sense but once you learn it you kinda hate to give it up.

Then too, it's much more romantic to sing "I Love You A Bushel And A Peck" than to sing "I Love You 35.238 Liters and 8,809 Liters." Somehow it seems to lose something in the translation.

DANGER! DANGER

Too many appliances for the capacity of your electrical circuitry? Overloading circuits is dangerous and can cause fire!

Willie Sez... "Read your meter on the same day each month!"

"You can't keep track of your electric power usage unless you read your meter regularly! Suppose you've been reading the meter the day you get your bill every month. Then, you're late by a full week one month. You have 30 days of usage on your current bill, but you'll have 37 days on the next bill and only 23 days on the next!"

Entering the 1979 EIPC Essay Contest?

Entry forms, background material and rules for EIPC's Annual Essay contest have been distributed to all high schools in the cooperative's service area.

If you are a high school sophomore or junior and you want to enter this year's contest, ask your English or journalism teacher for an entry form. (Remember, you don't have to be on our power lines to enter!) If your teacher is not participating or if he or she has run out of forms, complete the entry blank below in order to declare your intention to enter. We'll send you instructions and all the research and background material you'll need to write your essay.

Fewer than 100 eligible high school sophomores and juniors enter the contest each year, so your chances of winning one of the top six prizes are pretty good!

The two top winners will be awarded all-expense-paid, fun-filled, one-week tours to Washington, D.C., scheduled for June 8-15. These two and four runners-up will be awarded prizes and a very entertaining, all-day tour of Illinois' capital city, Springfield.

Talk with one of our recent tour winners and you'll be sure to enter!

The essay theme this year? It's a challenging one: "About half of the oil we use is imported. What, in your opinion, would happen if those supplies were no longer available for a full year?"

Entry form deadline is Friday, March 23, so we can mail your info packet to you in time for you to write your essay and get it in to us no later than April 9.

Eastern Illinois Power Cooperative
P. O. Box 96
Paxton, IL 60957

Please sent me EIPC's 1979 Essay Contest information packet.

Name _____

Address _____

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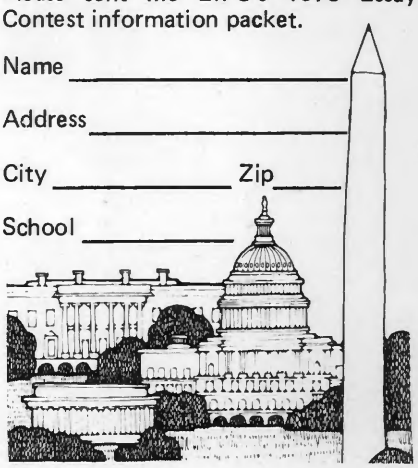
School _____



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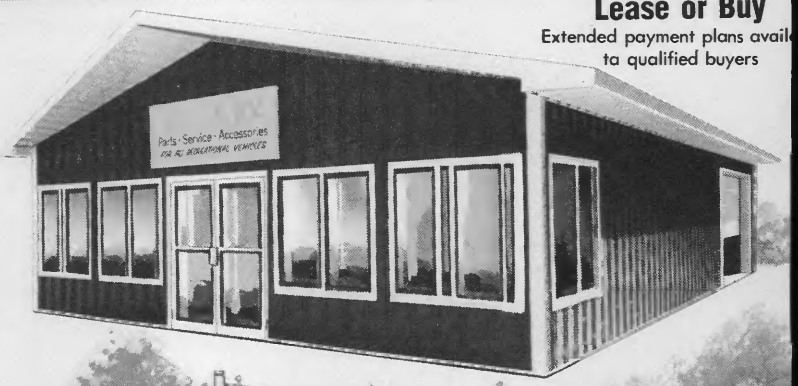

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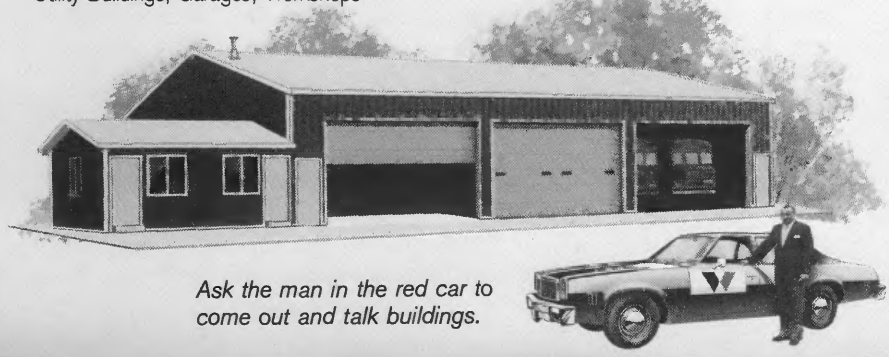

Ask the man in the red car to come out and talk buildings.

Call Collect or Mail Coupon to Nearest Office

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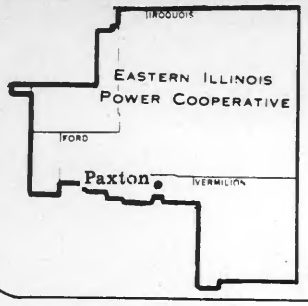


E.I.P.C. News

EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

A New Hazardous Substance?

Let's Ban WATER!

Al Capp, cartoonist and political satirist (he created "Li'l Abner"), used to call the young campus hotheads in his comic strip "Students Wildly Indignant about Nearly Everything" and the initials "SWINE" revealed Capp's opinion of such groups quite clearly.

Satire and rhetoric (why don't the schools teach it anymore?) have always been effective tools to catch the imagination and make a point that will dwell in the memory of the listener or reader.

The following bit of satire says volumes about our opinion of the no-growth people who call themselves "environmentalists" (when it suits their purposes). Unfortunately, in real life, the Prairie and Clamshell Alliance people are costing you and me many unnecessary dollars on our electric bills, and the situation isn't funny at all.

This little story came to Paxton from Austraila by way of Warren Electric Cooperative in Bowling Green, Ky.:

"Imperial Chemical Industries has announced the discovery of a new fire-fighting agent known as WATER (Wonderful and Total Extinguishing Resource). It is particularly suitable for dealing with fires in buildings, timber yards and warehouses, and is fairly cheap to produce. It is intended that quantities of about 1-1/2 million gallons should be stored in open ponds or reservoirs near urban areas and installations of high fire risk.

"WATER is already encountering opposition from safety and environmental groups. One group member has pointed out that if anyone immersed his head in a bucket of WATER, it would prove fatal in as little as three minutes. Each of the proposed reservoirs will contain enough WATER to fill half a million three gallon buckets. Each bucketful could be used a hundred or more times, so there is enough WATER in one reservoir to kill the entire population of the United Kingdom.

"Did you know, asked a fire-brigade spokesman, what would happen to the new medium when it was exposed to intense heat? It has been reported that water is a constituent of beer. Does that mean that firemen could become intoxicated from the fumes when they use it to put out a fire?

"The 'Friends of the World' said they had obtained a sample of WATER and found it made clothes shrink. If it did this to cotton, what would it do to people?

"In the House of Commons, the Home Secretary was asked if he would prohibit the manufacture and storage of this lethal new material. A full investigation was needed, he replied, and the Major Hazardous Group would be asked to report."

Across the Manager's Desk

by D. L. Tachick, Manager

Keep Heat Pump Filters Clean

Heat pump owners should pay close attention to their air filters. Clogged air filters restrict the air flow over the coils and reduced air flow can cause a compressor to fail. We suspect a number of heat pump compressor failures have been cuased by restricted air flow.

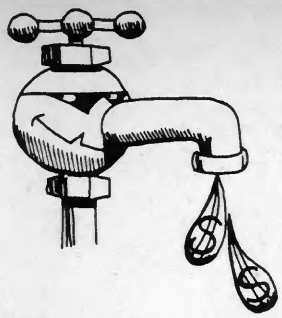
Dimming those lights will lower your bill!

Most dimmer controls available today can help you conserve energy and save money. The new solid state devices are not like the old rheostat or resistance dimmers. The old ones merely convert the power to heat and they consume the same number of kilowatt-hours at any light level.

Check the labels when you buy a dimmer and select one that says "transistorized" or "solid-state." As the amount of light decreases, the life of the lamp is increased and the power consumed goes down by almost the same amount.

Dimmer controls usually take the place of ordinary wall switches. They are designed with a capacity of up to 200 watts and higher. They are compact in size and completely self-contained to allow mounting in the same outlet box as a conventional on-and-off switch. The cost for all types of incandescent dimmers is about the same except that the type designed for a two-switch light (controlled from two or more wall switches) costs nearly twice as much as the kind that's made for a single-switch light.

Dimmers for fluorescent systems are available but you are cautioned to purchase the right kind for your system. Fluorescent dimmers cost more than incandescent dimmers.



...Hot water faucets holding you up?

Your hot water faucet can rob you of many costly kilowatt-hours or Btus if you set its thermostat too high. Recent research shows you can lower your energy costs from three to four percent for every 10 degrees you reduce the temperature. You can get by with a temperature of only 120 to 125 degrees—about as hot as your hands can stand—and never tell the difference in how clean your clothes or dishes are. New detergents and dishwasher heating elements let you turn your water temperature way down.

(Also, why sterilize the water for your dishwasher? If you can drink the water, you don't need to sterilize it.—Ed.)

Here are a few facts about heating water:

1. **Heating water is the second largest energy user:**
   A. Energy equivalent of 1.1 million barrels of oil per day goes into residential water heating.
   B. 240,000 barrels of oil per day are used for commercial water heating.
   C. About 4 percent of America's total energy consumption is attributable to heating water.

2. **Family hot water usage patterns have increased due to:**
   A. More widespread use of automatic washers and dishwashers.
   B. The larger capacity of newer appliances.
   C. Larger representation of teenagers in the general population. Teenagers stay in the shower for longer periods, thus using more hot water.

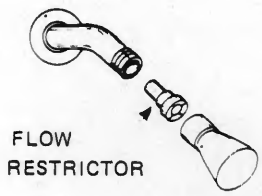
3. **In the average home, between 35 percent and 50 percent of total water use is hot water.**

ESTIMATED WATER USE

A.	Tub bath	10-15 gal.
B.	Shower (under 5 min. duration)	8-12 gal.
C.	Automatic washer	25-35 gal.
D.	Automatic dishwasher	11-16 gal.
E.	Hand wash dishes (each time)	9-14 gal.
F.	Shampoo	5-7 gal.
G.	Cleaning	3-8 gal.
H.	Food Preparation	5 gal.

AVERAGE HOT WATER USED PER DAY
2 adults — 1 child — 60 gal.
2 adults — 2 children — 70 gal.
2 adults — 3 children — 80 gal.

4. **Hot Water Savings — Shower vs. Bath**
   A. Sources indicate that taking a very quick shower will result in lower hot water consumption, but in reality many people don't take a quick shower; thus the extended time period results in more water consumption.
   Note: A quick shower is termed 5 minutes or less.
   B. To reduce consumption, a "flow restrictor" to limit the shower flow may be helpful. This little device can be installed in minutes, and can cut the shower flow from 6 gallons per minute to 3 gpm, thus saving a lot of hot water and reducing energy requirements for heating water.



5. **Water Waste Through Leaking Faucets**
   A leaking hot water faucet should never be disregarded. Little drops of water cost money. Here are several typical examples of how much hot water and electricity can "go down the drain" through leaky faucets!

DROPS PER MINUTE	GALLONS PER MONTH	KWH PER MONTH
60	192	48
90	310	78
120	429	107

6. **Thermostat Settings**
   A. An electric water heater with standard tank insulation will use 3 percent less energy per every 10° water temperature setback if the surrounding air is 70°F.
   B. If the temperature of the water in the water heater is reduced by lowering the thermostat setting, the heat losses to the surrounding air from heater jacket and from the hot water piping in the house will be diminished. This contributes toward energy savings.
   C. Water at 120°F. is normally adequate to do all household chores.

7. **Cost of Operation**
   A. Approximately 17 percent of the total-electric bill of an all-electric home goes to water heating.
   B. About 47 percent of the total-electric bill for the all-electric home without electric heat is for the electric water heater.

8. **Standby Heat Loss — Water Heater**
   A. Standby heat loss varies on water heaters depending on the location, the size of the heater and the amount of insulation used.
   B. Average standby losses vary from 4 watts per sq. ft. to 7.9 watts per sq. ft., depending on the thickness of insulation used.

   Square feet of tank area averages about—
   26 sq. ft. for a 50-gallon heater
   30 sq. ft. for a 66-gallon heater
   36 sq. ft. for a 80-gallon heater

9. **Insulation**
   A. Most tanks on electric water heaters are fitted with 1" of fiberglass or mineral wool insulation.
   B. Wrap jacket of electric water heater (top/sides) with batt insulation. Cover joints with tape. Increasing insulation 3" to 5" will save from 5 percent to 11 percent in standby heat loss.

He has worked with solar for 15 years

(Continued from page 9)

ice fall on it, just like it does on the glass ones. We're researching it out carefully, just like we do everything. You have to research carefully, because the manufacturers give you the top side. They don't lie to you, but they tend to give you facts based on optimum conditions.

"It's not good for the consumer if something goes wrong," he says, "and it wouldn't be good for us to have to go back and make the job good, which is exactly what we'd do. That's why we want to do it as well as possible. To protect us and the consumer."

The plastic is being used on one Solar 'Search product, though, he notes, and that is a portable, multi-use collector, which is to be mounted on a trailer, for farm applications. The idea is to use it for low-temperature grain drying in the fall, then possibly to heat a machine shed during the winter, and possibly for livestock buildings, too.

"It will be a simple, ready-to-use system," Warnock says, "just a big collector mounted on a trailer and with a flexible hose that will need to be plugged into whatever needs to be heated, and an electrical connection for the blower motor. We're all ready to go with the setup," he laughs, "but we don't have the trailer yet. Somewhere out there, there's a snowbound trailer that's going to hold our dryer. We'll get it out as soon as the weather permits."

In the meantime, work goes on, to build collectors and to research even better materials and methods, and to finally perfect the install-it-yourself system, including water heater, for under $3,000.

> "It's not good for the consumer if something goes wrong. That's why we want to do it as well as possible."

Why settle for a garage.

For little more than the cost of an ordinary garage, you can enjoy the organized, uncluttered life that goes right along with a Sportsman utility building. This beautiful, maintenance-free building is the practical answer to 'where am I going to put everything?'. There's plenty of room for all the things you want to protect—cars, trucks, trailers, motorhomes, boats, etc.—with lots of space left over for a workshop or hobby area, if you like.

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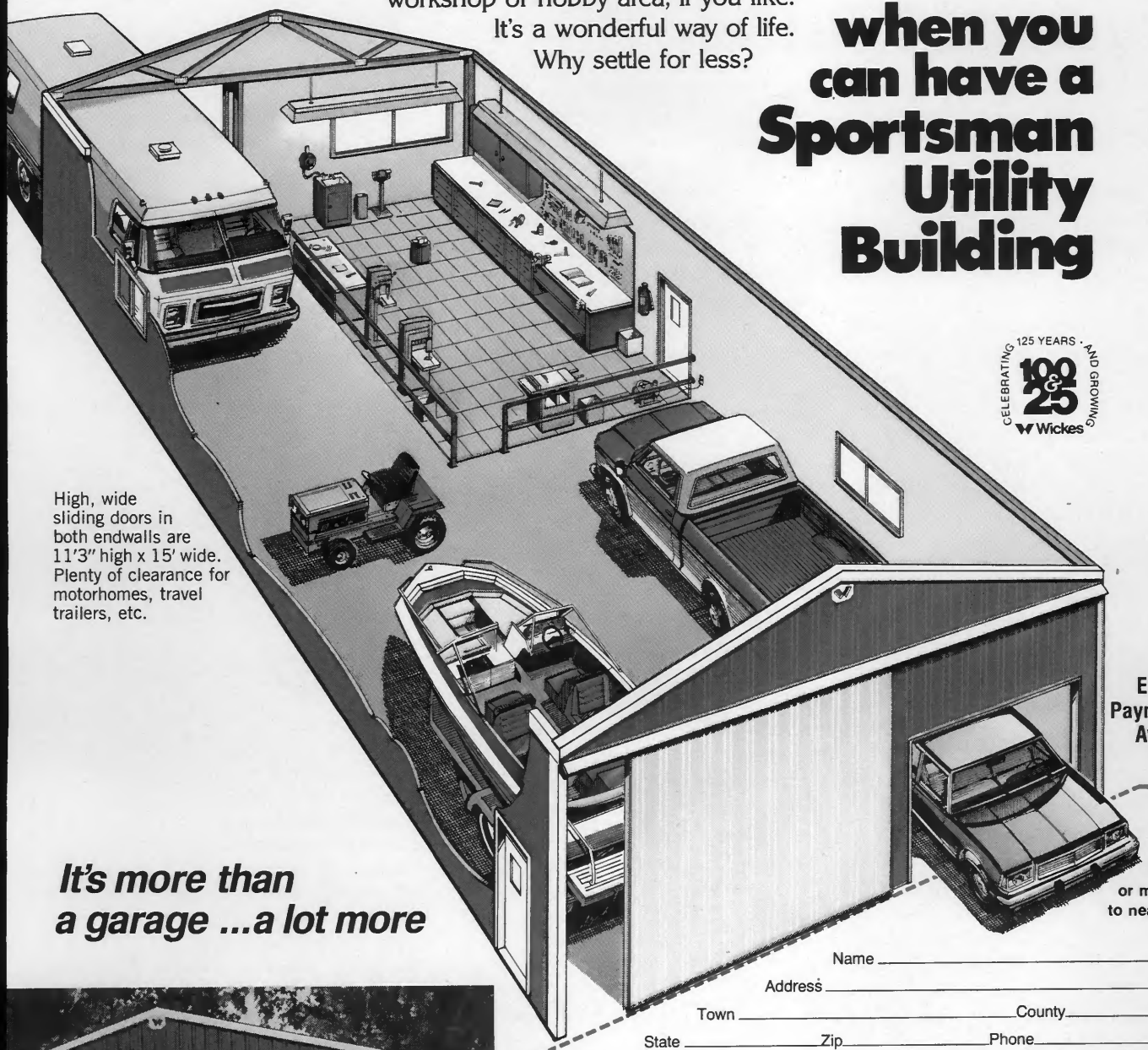
when you can have a Sportsman Utility Building



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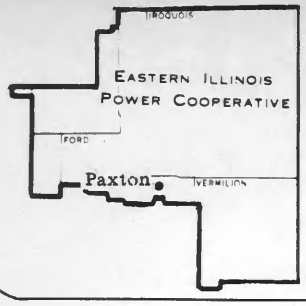


E.I.P.C. News

EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

Ugly power lines?

You and I put 'em there!

Following is a statement by Paul Harvey, the famous news commentator. He wrote it after a discussion with Andy Freeman, manager of Minnkota Power Cooperative. Being a rural electric cooperative member, you should enjoy reading it:

"Some years ago, Union Electric Power Company wanted to run a new highline across a corner of our family farm in the Ozarks. Some of the neighbors didn't like the idea. I didn't like the idea either. Surely, the power company could do without or string their wire elsewhere so's not to clear beautiful timber and clutter the horizon.

"Yet, after we property owners of the area had met with power company officials, we learned a lesson I will never forget—that the power line was 'ours,' and not 'theirs.' And, the spirit of independence in our country now, necessarily, has evolved into a new spirit of interdependence.

"'Nobody has more eloquently enunciated our nation's new spirit of interdependence than Andy Freeman, manager of Minnkota Power Co-op, based in Grand Forks, North Dakota. Here's how:

" 'You go to college, drive a car, enjoy a warm, lighted classroom. You buy radios, TV sets, stereos and hairdryers and you bring them home and plug them in—without realizing that somewhere at the other end of that electric line is a power plant and a coal mine.'

" 'You graduate and get married; you need a refrigerator and a stove, a TV set, a washer and dryer, a mixer, a frypan and a clock. Babies are born and they start to demand warm milk, clean diapers and a baby buggy which was mass produced at a price you can afford—because of the electricity.'

"So, the wires across the horizon we put there—with our insistence on electric convenience and labor-saving devices. We want planes over us and wheels under us and air conditioning all around us and toilets that flush.

"Now, any American who wants to live as Daniel Boone did, still can. There are primitive areas of our western mountains where you can isolate yourself—chopping wood and living by candlelight and carrying ashes and water and scrubbing clothes in the creek. And, your energy requirements will be reduced to nil.

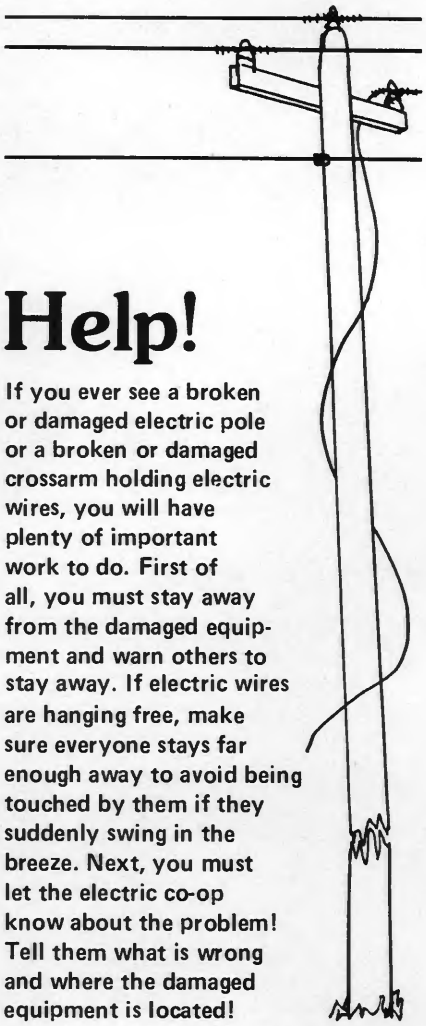
"But, hardly anybody lives there because most of us now want more—including instant light and instant heat and frozen food and functional hospitals. We want our Coke cold and our meals hot. Life is always a trade-off, says Andy Freeman, between what we want and what it costs. None of us will do without the comforts and conveniences and luxuries that energy provides—we just don't want to be billed for it. We want lights and electricity without generating plants and transmission lines, and there's no way.

"A season or so ago, some landowners in North Dakota objected to the construction of a high-power line across farmland while, at the same time, some of those landowners were asking for more power for agricultural irrigation.

"So now, I sometimes look from our farmhouse to the silhouetted high lines across the sunset horizon and they have a kind of 'beauty' of their own. Anyway, I know now who's to blame for them."

Across the Manager's Desk

by D. L. Tachick, Manager



Help!

If you ever see a broken or damaged electric pole or a broken or damaged crossarm holding electric wires, you will have plenty of important work to do. First of all, you must stay away from the damaged equipment and warn others to stay away. If electric wires are hanging free, make sure everyone stays far enough away to avoid being touched by them if they suddenly swing in the breeze. Next, you must let the electric co-op know about the problem! Tell them what is wrong and where the damaged equipment is located!

Let Uncle Sam help you

Weatherize Your House

Homeowners who add insulation or storm windows this year may be eligible for a $300 tax credit when filing 1979 federal income tax returns next year. The credit also would be available for storm doors, improved furnace burners, electric ignitions that replace gas pilot lights, automatic energy-saving set-back thermostats, caulking and weatherstripping. Other items may soon be added to this list (at the discretion of the IRS).

The tax credit of $300 is now the maximum that can be deducted from taxes due under the residential energy conservation provision of the National Energy Act which became law in November, 1978. (A 15 percent credit is available for the first $2,000 spent on energy-saving devices for the home.)

Homeowners should not rush into unwise investments simply to take advantage of the tax credit. Care should be taken to purchase only those products and services which will assure you a return on your investment through savings on your utility and fuel bills.

The 1978 energy-saving tax credit was retroactive to April 20, 1977, but homeowners (and renters,too, if they paid for the weatherizing) could take the credit on their 1978 tax returns.

Save your receipts. Future home energy conservation investments also are eligible for credit through December 31, 1985.

Tax laws change from year to year and it would be a good idea to check out the eligibility of any energy conservation work you do this year.

How to reduce your

Water-Heating Costs

Forty-four feet of three-quarter-inch piping holds almost exactly one gallon of water. If your water heater is that same distance from the hot water faucet you want to use, you'll need to draw about two gallons before the temperature begins to rise appreciably.

As you draw off the two gallons, two more gallons of cold water enter your water heater. If the temperature of the incoming water is 40 degrees and the temperature of the water going out of the water heater toward the faucet is 120 degrees, your net energy expenditure will be 1,280 Btu's (British Thermal Units). Since one Btu can heat one pound of water one degree, it takes 1,280 Btu's to heat 16 pounds 80 degrees.

At the rate of 3,413 Btu's per kilowatt-hour, your electric meter will record about two-fifths of a kilowatt-hour—or, when you get your electric bill, it'll be nearly two cents higher than it would have been if you hadn't wanted hot water when you turned on that faucet—or if your water heater was located a few inches from the faucet instead of 44 feet away. Multiply that cost times the number of times you used hot water from that faucet, and you come up with a sizable portion of your bill.

Insulating the 44 feet of pipe may mean having to draw off only one gallon of water to get the temperature you want—thereby saving you about half the cost.

Also, when the time comes to replace your old water heater, you can shop for a more efficient unit that will heat those two gallons with less energy. The U.S. Department of Energy (DOE) is now requiring manufacturers to list the energy efficiencies of their water heaters so that you can compare one brand against another and one model against another. Check your new Sears or Montgomery Ward catalog for an example of how the new DOE-required information can help you choose the most efficient heater.

Woodstove Savings: $62
1st Year Cost: $54,815

The following "case study" shows how much you can save by converting your present heating plant to a wood stove. Wayne A. Couter of Service Unlimited, Inc., an air-conditioning contractor in Cumberland, Maryland, wrote a clever tongue-in-cheek essay on "How You Can Save with a Woodstove." In it, he listed the following expenses and savings:

Stove, pipe, installation, etc	$458.00
Chain Saw	149.95
Gas, maintenance for chain saw	44.60
4-wheel drive pickup, stripped	8,379.04
4-wheel drive pickup, maintenance	438.00
Replace rear window of pickup (twice)	310.00
Fine for cutting unmarked tree in state forest	500.00
14 cases Michelob	126.00
Littering fine	50.00
Doctor's fee for removing splinter from eye	45.00
Safety glasses	29.50
Emergency room treatment, broken toes	125.00
Safety shoes	49.50
New Living room carpet	800.00
Paint walls, ceiling	110.00
Worchester chimney brush and rods	45.00
Log splitter	150.00
15-acre woodlot	9,000.00
Taxes on woodlot	310.00
Replace coffee table chopped up and burned while drunk	75.00
Divorce Settlement	33,678.22
Total 1st Year Cost	$54,922.81
Savings in regular fuel during first year	($62.37)
Net Cost of first year's woodburning	$54,815.44

At the bottom of Mr. Couter's list were these words: "Wait 'til next year!"

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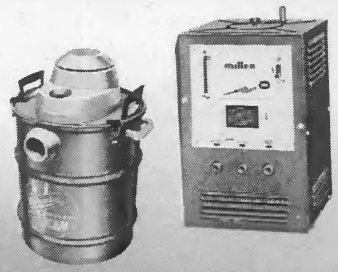

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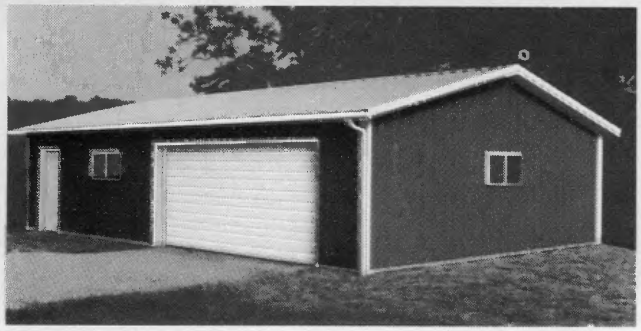
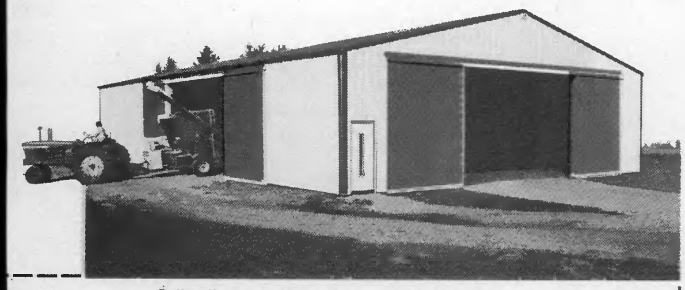


...with the purchase of any Wickes building during our 'Early Bird' spring offer.



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Order your new Wickes building now at our low, competitive pre-season prices, and we'll give you absolutely free up to $1,000.00 in power tools or shop equipment of your choice. It's our way to say thank you for letting us introduce you to the best building value in America—a Wickes building. It's a super deal, so don't delay. Offer ends May 5, 1979. Call collect or come in today.

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egislator urges dustry groups

Agriculture, Conservation and Energy Committee, added that agriculture had "not suffered at the hands of the Illinois General Assembly, nor will you suffer." On farm problems, Knuppel said they "rest in Washington," and emphasized the importance of looking toward Washington for help with problems facing agriculture.

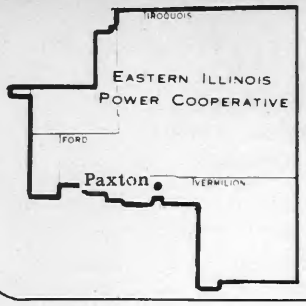
Representative Gale Schisler of London Mills, Chairman of the House Agriculture Committee, said the Illinois General Assembly was in Springfield to do the people's business. He added that he considered the House Agriculture Committee to be the most important in the General Assembly and urged agriculture groups to come forward with their ideas.

Illinois Agriculture Director John Block, the main speaker at the breakfast, called on the Legislature to help get agriculture's story across to the general population.

"We have plenty to be proud of. Look at ever-increasing productivity of the American farmer, who now feeds 56 of his fellow men across the state, the nation and the world," Block told the more than 600 attending.

Sid Hutchcraft, Executive Vice President of the Illinois Pork Producers Association and master of ceremonies, termed the breakfast "an opportunity for those of us in agriculture to better know the people who represent us and to help them understand the workings of Illinois largest industry."

Thirty-nine state agriculture commodity and industry groups, including the Association of Illinois Electric Cooperatives, sponsored the breakfast.



E.I.P.C. News

BOARD OF DIRECTORS

Larry D. Anderson, President
Gene P. Warmbir, Vice President
Howard Taylor, Secretary-Treasurer

George Ficklin
G. N. Hodge
Clement Ikins
Jack D. Ludwig
Perry Pratt
William P. Raber
Robert D. Thompson
Elbert Weston

EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

Incumbents' Goals Unknown?

Ballots a Waste of Paper?

One EIPC member came to the annual meeting last month, ate lunch, watched the movies and listened to the president's, secretary's and manager's carefully prepared reports. He also probably stayed around in case his name was drawn as a prize winner. He may have won a prize. (About a fourth of the members who attended did win prizes.)

There's one thing, however, that he did not do: He didn't vote. Instead of voting for one or more of the candidates who were selected earlier by the EIPC nominating committee or writing in the name of a fellow member he himself could have nominated, he chose instead to write the following note on his ballot:

> "This ballot seems to be a waste of paper. There is no choice. I have no idea what the goals any of these men hold for the co-op. Why vote?!!"

It is doubtful that whoever wrote this criticism is really very interested in getting an answer to his questions. He didn't include his name or address. It is also doubtful that he would even read a reply—or that he has ever spent a lot of time reading anything we've written on these pages.

The goals—as well as the views, actions, motives, aims, etc.—of each one of the three directors who stood for reelection to the board this year are implicit in the way the cooperative has been run during the three years these men have served. In fact, every appropriate facet of each director's character, his concern for his fellow members, his willingness to attend meetings at inconvenient times and to serve without salary—and also his good judgment—are matters of record—because all of the cooperative's transactions and daily operations are matters of record.

The complainant could spend the day with some brand new candidate and talk of nothing but goals—and still not learn as much as is already known about the goals of each and every one of EIPC's eleven directors.

The author of the little note is perfectly right, however, about wanting to check the goals of any new candidate whose qualifications and goals are not so well known.

Across the Manager's Desk

by D. L. Tachick, Manager

Save by thinking small-not BIG

While you can save more energy by reducing your heating and cooling kilowatt-hour usage than you can by reducing any other usages, wise use of small appliances may yield worthwhile savings as well and should be included in a total residential energy conservation program.

Small kitchen appliances can save energy if you use them to prepare your small meals. When used correctly, toasters, waffle irons, electric grills and skillets, bean pots, fondue cookers, popcorn poppers, electric coffee pots and bottle warmers usually require less energy than the range burner or oven. Toasting bread in an oven, for example, requires three times as much energy as using a pop-up toaster.

Portable cooking appliances should be kept out of drafts.

As with the range, it is important to turn small kitchen appliances off immediately after use.

Many portable appliances can double as serving dishes, too. This can cut down the number of dishes to be washed and therefore reduce hot water and electricity consumption.

EIPC's 1979 Board Officers . . .

Eastern Illinois Power Cooperative's three top officers were reelected during a reorganization meeting of the Board of Directors held immediately following the cooperative's 42nd Annual Meeting last month in Paxton.

1979 officers of EIPC are President Larry D. Anderson, Donovan; Vice President Gene P. Warmbir, Clifton, and Secretary-Treasurer Howard Taylor, Cullom. Their terms will end at the 43rd annual meeting on March 22, 1980.

All three directors whose terms expired at this year's Annual Meeting were reelected for terms of three years. They are: Clement V. Ikins of Onarga, representing Iroquois County; Jack D. Ludwig, Fithian, representing Vermilion County, and Howard W. Taylor, Cullom, representing Livingston County.

and capable of causing widespread panic!)

"Hydrogen blast threat looms" (If you can believe the "reporting" that said the bubble was as large as 850 cubic feet, what's so threatening about a bubble of hydrogen that's only one-seventh the size of a two-car garage? Later, skillful manipulation of coolant valves reduced the bubble to some 50 cubic feet—about the same size as the inside of a little Chevette. Yet, the news media blew these dimensions—and the extent of the danger—out of all proportion implying that the area was threatened with catastrophe. How could such a small bubble inside a 4000-cubic-foot, 4-inch thick, solid steel pressure vessel "loom" as any kind of danger, even to someone standing inside the huge containment building right next to the reactor?)

Metropolitan Edison's new reactor (it went on line only last year) not only showed how careful we must continue to be when it comes to harnessing the atom—but also how careful and critical we must be when it comes to trusting any documentation gathered by our mass communications media.

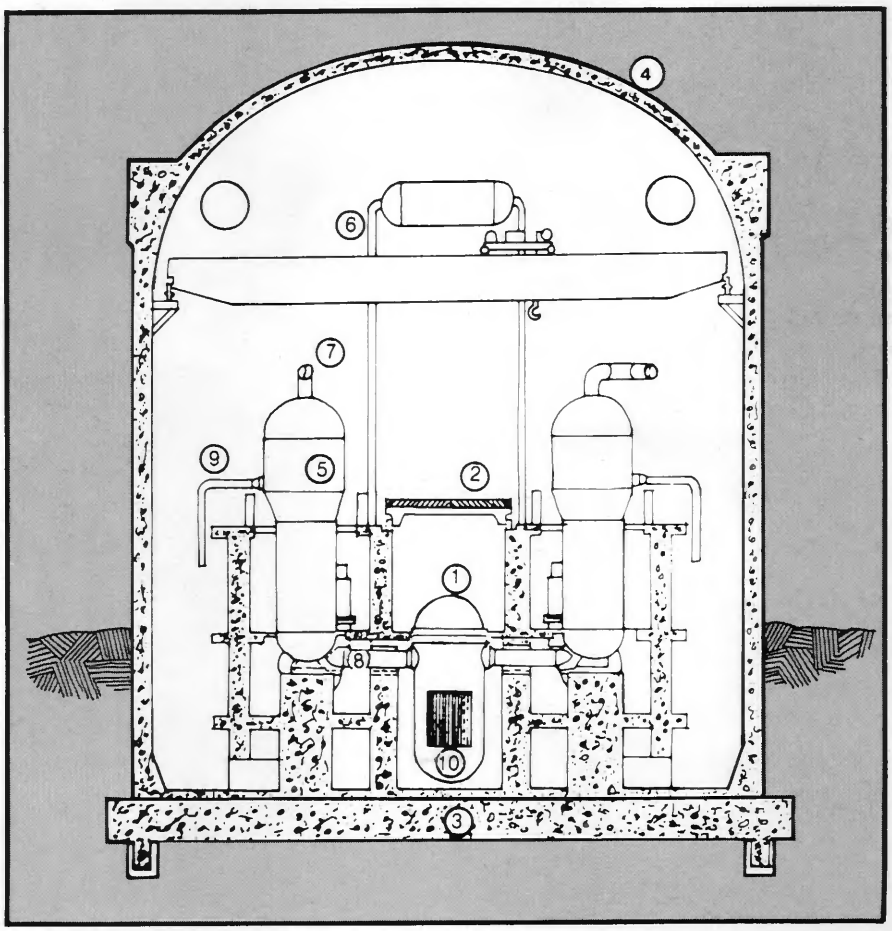
Some of the TV and radio network news commentators and reporters and newspaper columnists and reporters ought to return to journalism school (if indeed they ever attended one) and learn again about how the constitution never intended the right of free speech to include permission to cry "fire!" in a crowded theater.

You have been discriminating enough to give the sensational news the low respect it deserved, in which case you may question our concern. "Who is dumb enough to believe the anti-nuclear, no-growth propaganda?" you ask. Here's why we're concerned:

Most people recognize the balloon-launching stunts, the T-shirt and bumper sticker slogans, the sit-downs and the nuisance courtroom antics for what they are, but there are many who were on the fence before Three-Mile Island. They may be the ones who heretofore answered "no opinion" in the frequent polls on nuclear energy. Now, however, they're ready to get off the fence, paint signs, march, challenge and, perhaps, become martyrs in the noble struggle against the nuke. They may join the March on Washington that was being organized at this writing by a bunch of no-growth splinter groups calling themselves environmentalists, earth and nature alliances of one kind and another and friends of the snail darter.

"Let 'em go on and march," you say? "Those Congressmen won't pay any more attention to them than they did to the farmers a few months ago!"

Well, don't you believe it. Something about these no-growth demonstrations gets to the legislators. Maybe it's the circus atmosphere or the clothes the marchers wear. Somehow, they believe the motley group outside the window represents every voter in their state.



1. Reactor pressure vessel
2. Reactor missile shield
3. Concrete foundation
4. Containment building
5. Steam generator
6. Safety cooling injection system
7. Main steam line
8. Primary coolant loop
9. Feedwater to steam generator
10. Reactor Core

Metropolitan Edison's Three Mile Island nuclear power plant uses a pressurized water reactor in a configuration similar to the above. In a worst possible accident, the core material could indeed melt as the anti-nukes claim—if all cooling water were withdrawn from around it. Even if such an unlikely event were to occur, however, the "melted" material would simply dissipate into the thick concrete "sump well" and permeate the earth below it. It could not spread horizontally to reach beyond the super-thick walls of the huge containment building. And, it could not rise through the many feet of earth beyond the outer walls even if it could migrate that far.

Air Conditioner Winter Savings?

Want to save a few bucks on your air conditioning bill next winter? That's right: Next winter! There's a small electric heater in your compressor's crankcase that keeps it warm between cycles in the summer. The 50 to 75 watts the heater uses can cost you $14 to $22 for eight months. Don't forget to return the heater back on for 24 hours before you let the AC cycle on or the compressor can be severely damaged!

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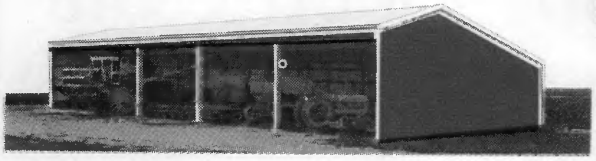

COMMERCIAL BUILDINGS
Shops, warehouses, stores, etc.

UTILITY BUILDINGS
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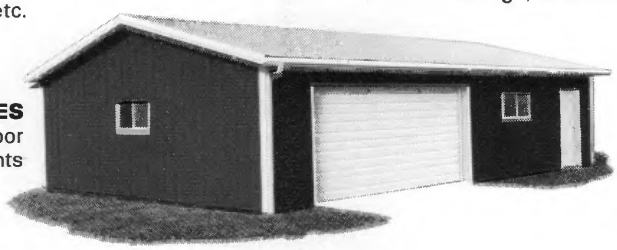
Many sizes and door arrangements



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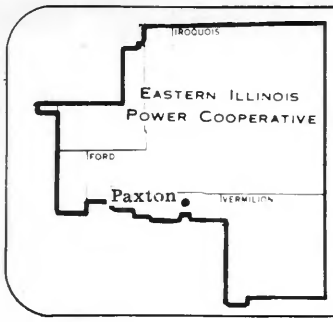

E.I.P.C. News

EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

More Regulation Will Cost You

3-Mile Island and Your Electric Bill

"The Three-Mile Island nuclear plant scare was an outrageous hoax!" according to the lead article in the April 24 edition of the widely circulated National Enquirer, and we've just about reached the same opinion.

"The truth is – there was never a cause for panic," the article says, "Outlandish scare tactics by the media, anti-nuclear alarmists and, worst of all, the government's own Nuclear Regulatory Commission blew the incident all out of proportion," the nationally circulated newspaper said.

The Enquirer said it talked to several top nuclear scientists and an unnamed source inside the plant – and learned:

A Meltdown Was Impossible

"The highly publicized possibility of a 'meltdown'—in which radioactive material burns through the floor of the nuclear plant and escapes—was an utter impossibility.

"There was absolutely no chance that the notorious hydrogen bubble that developed inside the reactor could explode. And, even if it did, it could not puncture the 3½-foot-thick cement and steel walls of the power plant.

"By April 1—just four days after the nuclear plant breakdown—the federal government had a sophisticated, computerized analysis showing that an explosion or meltdown was impossible—but they failed to release this report to the public.

"Inside the nuclear power plant, the technicians were calm and cool as backup systems—designed to handle just such an emergency—functioned properly and the situation was brought under control."

Contrary to dire warnings in newspapers and on TV, the events proved—not disproved—the safety of nuclear energy, the Enquirer quoted knowledgeable experts as saying.

"But the truth didn't stop fear-mongers from spewing vicious falsehoods," the newspaper said.

After quoting nuclear physicists and professors of nuclear engineering from all over the country, the Enquirer ended its report with this comment by one nuclear engineer:

"The biggest problem could have been death—due to the unnecessary panic."

Gross Irresponsibility!

The engineer referred, of course, to the gross irresponsibility some TV networks and newspapers displayed when they abandoned all the rules of good journalism so they could be first to capitalize on the sensational happenings. Opportunistic TV news commentators sank to new low levels as they "interviewed" anyone who had something quotable to say—whether he was qualified or not—and the more sensational, the better. One disgruntled, masked employee of the unfortunate utility made highly inaccurate, unchallenged statements. One nearby resident told the TV camera "I could taste the radioactivity spewing from the plant."

Every U. S. newspaper and television station has a constitutional right to take whatever political stance it wants. And that's as it should be. Few Americans would deny a columnist or a TV commentator the right to hold whatever opinion he wants to hold regarding any political or religious subject he cares about.

What I and a lot of others would like to change, however, is the devious practice of continually trying to pass off opinion as news. Opinion belongs on the editorial page—not in a screaming headline on the front page where it is interpreted as fact by most readers! Read some of the irresponsible headlines that appeared in newspapers around the country:

"Evacuation would hit one million" (If the earth were to blow up, billions would be killed, no doubt. The unwary reader could easily be caught off guard and read this line as saying "one million will evacuate.")

Nuclear Disaster?

"Nuclear Disaster" (One Champaign radio station announcer called the accident a disaster, also. Is it a disaster when there are no deaths, no injuries and no damage to private property except the damage caused during the disorganized evacuation that resulted from the panic caused by TV, radio and newspaper "reporters.")

"Pregnant women, kids flee N-zone," "Thousands told to stay in homes" and **"Fear meltdown of nuclear core"** (Gross misrepresentation

Across the Manager's Desk

by D. L. Tachick, Manager

The Care and Feeding of
ELECTRIC MOTORS

If you have an electric motor that won't start or one that's too noisy, vibrates violently or overheats, it demands your immediate attention.

Here are some trouble-shooting pointers from engineers at Gould, Inc., St. Louis, that might save you some time and money: Does your motor(s) exhibit any of these symptoms?

1. Motor won't start. The most common cause is power trouble, a loose or disconnected wire or blown fuse. Check the voltage at the motor. Replace the blown fuse. Tighten all wire connections. Check the disconnect switch.

The problem may be too heavy a load on the motor. Disconnect the motor from its load and try to start it. You may have to reduce the load or replace the motor with one of greater horsepower.

A motor may also not start because of an overload caused by an equipment jam. Before attempting to correct this problem, disconnect the power. Remove the cause of the jam. Reconnect the power and push the manual reset overload protector button.

2. Excessive hum. The motor may not be properly connected or there may be a winding fault causing a short circuit within the motor. Recheck all connections against the wiring diagram. Check for proper voltage connections.

3. Regular clicking. First, look for an obvious cause—perhaps an external motor fan striking the fan cover. Disconnect the power, then realign the fan cover. If you don't find an obvious cause there may be foreign matter in the air gap or a problem with the centrifugal switch.

4. Knocking, rumbling. The motor's ball bearings are probably involved. The bearings may be worn due to a lack of or too much lubricant, or they may be worn due to mechanical overload or excessive temperature. In either case, have the bearings replaced and put in new grease of the recommended grade. If the bearings do not show wear, the problem may be foreign matter (dirt, filings, etc.) in the grease or bearing housing. Have the bearing housing cleaned and replace the bearings.

5. Vibration. This condition may be caused by misalignment between the motor and machine, or there may be vibration in the driven machine. Run the motor disconnected to check for the latter. To cure the problem, realign the motor to the machine or eliminate the sources of the vibration in the machine itself.

6. Motor overheating. Overloading is the most common cause of overheating. Measure the line current and compare it with the nameplate rating on the motor. Check for excessive friction in the motor, drive or machine. Reduce the load or replace the motor with one of greater horsepower.

Overheating can result from the supply voltage being too high or too low. High voltage can cause nuisance overload trips. Low voltage can result in the motor not starting or overheating on a start.

If voltage is more than 10 percent above or 10 percent below the nameplate voltage rating, check your wiring to be sure the circuit the motor is on isn't overloaded.

Another cause of motor overheating is dirt restricting the ventilation air flow. Check the flow of air and brush excessive dirt and dust from all motor surfaces.

Other sources of overheating are bearing failure and shorted stator windings. Have the bearings and endshield (brackets) replaced, if necessary.

7. Bearing overheating. This trouble may be a simple cause of over-greasing. If so, operate the motor for 30 minutes with the grease plugs removed to expel excess grease. Bearing over-heating can also be caused by misalignment of the bearings. Check for external motor damage.

Electric motors are among the most dependable producers on the farm. Properly cared for, they can perform their tasks smoothly and almost silently with a minimum of care and attention for many months. Keep your eyes, ears, and sense of touch attuned for signs of impending trouble.

Efficiency Costs!

How long does it take to recover the extra cost of a more efficient, energy-saving electric motor with the savings you'll realize? It may take longer than you think.

One of the big mail-order houses advertises three different 1/3 horsepower electric motors — each drawing different wattages, and costing more as their wattage requirements decrease.

They have a 490-watt motor for $42, a 450-watt motor for $45 and a 400-watt one for $60.

At five cents per kilowatt-hour (kwh), you would have to run the 450-watt motor for 1,500 hours to recover its $3 extra cost.

You would need to run the more efficient 400-watt motor for 4000 hours in order to recover its $18 extra cost.

Only your own use can determine if that's good economics for you. Certainly, the motor manufacturers are on the right track, but a 43 percent premium is a bit steep if it takes you several years of moderate use to recover the extra cost.

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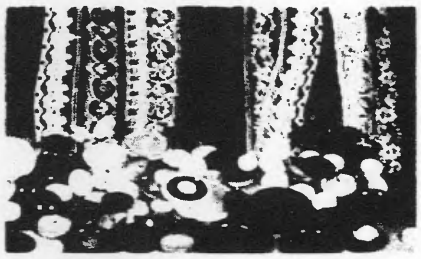

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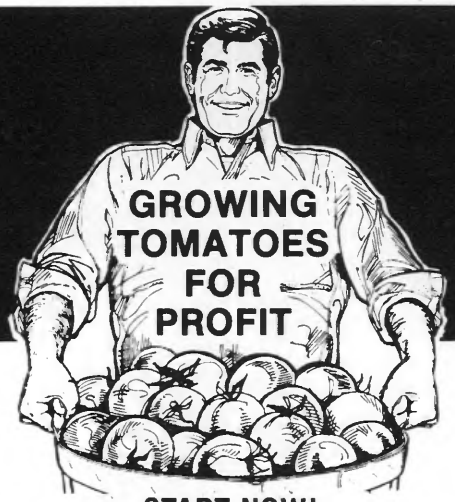

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elaborate displays, and after the manned moon landings, he added a rocket ship to his program. The rocket ship, outfitted with a suitable array of fireworks, actually appears to lift off as it rises through the air on a series of ropes and pulleys.

"The crowds like Ol' Smokey more than just about any of the other displays, I think," Baker says. Ol' Smokey is a replica of a steam locomotive, complete with cowcatcher, rolling wheels and smokestack.

Clark launces 10- and 12-inch aerial bombs from half-buried mortar tubes to capture and hold the crowd's attention with deafening roars, and intersperses Roman candles, firecrackers, whistles and jumping jacks throughout the program. The Liberty Bell, American Eagle, devil's wheel, a smiling face and several other displays round out the spectacular.

Clark builds all the displays at his rural home southwest of Lovington, and Mrs. Clark puts on a potluck meal for all those who help with the displays. When the food is gone, everybody helps load the assemblies on pickup trucks for the drive to the Lovington High School for final assembly.

For safety reasons, Clark does all the firing himself. "Things get a little hectic during the firing and I wouldn't want anyone to get hurt," he says.

Lovington did not have a fireworks program before the Clarks got into the act. Former Lovington Mayor Wendell Dahm and area minister Larry Beebe cooked up the idea of a Fourth of July celebration with the support of other community leaders and various civic groups, and Clark was "drafted" to develop the actual fireworks exhibition.

He relishes his role as pyrotechnist, Clark says, but the real joy comes from seeing his family and friends working together on a community project and from the happiness the displays bring to children and adults who view the traditional Lovington celebration of America's independence.

Clark devotes his time throughout the year to other community affairs too, as a member of the Lovington School Board and Lovington Ambulance Service Board.

Cost of increasing regulation

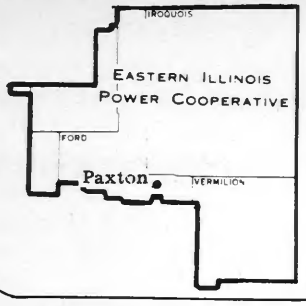
(Continued from page 7)

before the electric cooperative conference.

"They are not swayed by those who turned out for the rally," the aide said, adding that many of those at the rally came out to see the celebrities. He went on to note that Congressmen have witnessed 20 years of demonstrations and such activities do not have much influence in Washington.

During the session with Senator Stevenson's assistants, Walter R. Smith, President of Soyland Power Cooperative of Decatur, urged Congress and others in leadership positions in the federal government to develop higher public profiles on matters relating to energy development, including nuclear, as he stressed the impact of media coverage in other parts of the country among persons who are not aware that elected officials put much more stock in the opinions of constituents than that of the demonstrators.

As they talked with Congressmen, the Illinoisans noted that both the Rural Electrification Administration insured and guaranteed loan programs have no impact on the federal budget and that recent studies by the Office of Management and Budget and the General Accounting Office supported the cooperatives' position.



E.I.P.C. News

EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

The Most Frightening Syndrome of All

Can We Do Without Nuclear?

Before Three Mile Island, 72 U.S. nuclear power plants were producing 13 percent of this country's electric energy. The 90 nuclear plants now under construction will add another 19 to 20 percent for a total share of nearly one-third!

How much is 13 percent?

It's just about equal to total U.S. electric output in the year World War II ended.

It equals Great Britain's entire electrical output last year.

It exceeds the output of all of the great hydroelectric power plants in the United States.

The Ralph Naders, Jerry Browns, Jane Fondas and their fellow travelers are calling for the complete shutdown of all nuclear power plants in this country. Can you imagine the impact such a move would have on his country?

America's oil companies are just barely able to supply the country's ever-growing demand for heating oil and gasoline.

The temporary glut of natural gas that resulted from lifting a few price controls would soon disappear and little help could be expected from that quarter.

The no-growth people and environmentalists (including the above famous personalities) have tied up the coal industry to the point where it is no longer a completely reliable source of power plant fuel.

You've seen the drastic economic effects even short interruptions in supply can cause: A short oil embargo, a few weeks of super-cold weather, a coal strike and a few misplaced oil priorities proved that there is more than one way to cause wholesale layoffs, brownouts, school closings, etc. and taught us just how vulnerable we really are.

Across the Manager's Desk

by D. L. Tachick, Manager

Back to the BASICS

What is a BTU?

BTU is a unit of measure used in talking or writing about energy. A British Thermal Unit (or BTU for short) means the amount of energy needed to raise the temperature of 1 pound of water by 1 degree Fahrenheit (its counterpart in the metric system is the calorie). A kilowatt-hour of electricity, for instance, has an energy content of 3,413 Btu's. A gallon of gasoline contains 125,000 Btu's of potential energy, a cord of wood 20 million Btu's, and so on.

All that energy adds up to over 75 quadrillion Btu's consumed in the United States last year. The per capita rate of consumption of energy by Americans is 300 million Btu's per year. Compare that to the per capita consumption in other parts of the world: A Russian consumes 130 million Btu's per year; a Chinese 13 million, a Nigerian 1.5 million Btu's per year; and so on, for a per capita world average of 35 million per year.

What is a Kilowatt Hour?

A kilowatt-hour (kwh) is the unit in which electricity is measured as it is used in homes, businesses and industries. It is one kilowatt, or 1,000 watts, used for one hour. For instance, one kilowatt-hour (kwh) could power ten 100-watt light bulbs for one hour. Consumers are billed according to how many kilowatt-hours (kwhs) are used in one month, and this amount is noted on the electric bill as the number of kwh used.

. . . and Insulation R-Values?

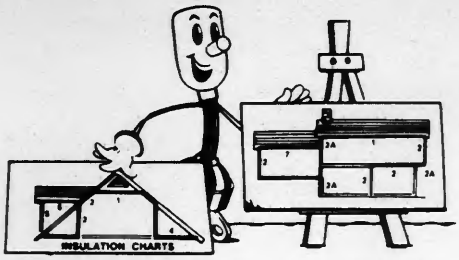
An insulation's R-value describes how well it resists heat loss and gain. The higher the R-value, the better the resistance. For instance, R-38 insulation is often recommended for attics, since that is an area where a great deal of heat loss and gain occurs. For floors, insulation with an R-19 value is sufficient. For walls, an R-19 value is sufficient in this climate.

To determine exactly what type of insulation your home needs, see us.

Russian Nuclear

Nuclear power plant construction has been going great guns in Russia. As far as we know, there hasn't been a single group like Prairie Alliance launching balloons, or filing nuisance suits, or defending louseworts or snail darter minnows — or protesting high electric bills because they include construction work in progress charges.

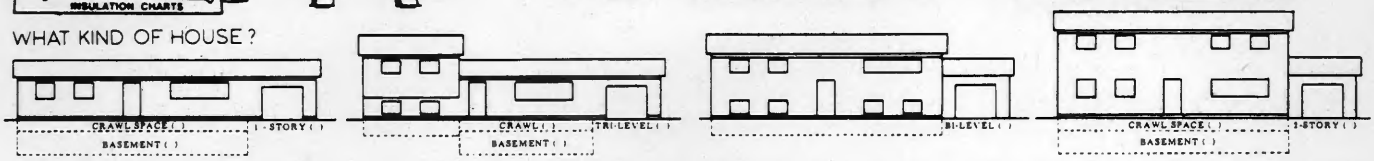
In fact, the Russians don't even build protective containment buildings around their nuclear reactors — let alone thick steel and concrete ones like we do in this country. Their one exception to this slight oversight is a model plant they use as a showpiece for potential capitalist customers.



Willie Wiredhand

'conservenergy' energy audit

WHAT KIND OF HOUSE?



I. HEAT LOSS, HEAT GAIN INFORMATION:

1. Sizes and exposures of heated and cooled spaces:
   a. 1st floor sq. ft. _____ . Percentage of this area heated _____ . Percentage cooled _____ . Ceiling height _____ . Total length of all exterior 1st floor walls_____ . Percentage of floor area with sloped or cathedral ceilings _____ .
   b. 2nd floor sq. ft. _____ . Percentage of this area heated _____ . Percentage cooled _____ . Ceiling height _____ . Total length of all exterior 2nd floor walls_____ . Percentage of floor area with sloped ceiling_____ .
   c. Basement sq. ft. _____ . Percentage of this area heated _____ . Percentage that's warm without heating _____ . Ceiling height _____ .
   d. Crawl space sq. ft. _____ . Percentage that stays above 30 to 40 degrees on coldest days _____ . Distance from subfloor to ground _____ . Heating ducts in this area?_____ . Are ducts insulated?_____ .
2. Doors and window exposures:
   a. Number of exterior doors _____ . Solid wood, hollow-core wood, insulated and steel-clad (what kind and how many? _____ Number that are mostly glass_____ . Partially glass _____ . Are door frames well caulked? _____ . Weather-stripped?_____ .
   b. Number of windows_____ . Double-hung, casement or horizontal sliding_____ . Total sq. ft. of all windows_____ . Single-paned, double-paned or equipped with storm windows? _____ . Caulked?_____ . Weather-stripped? _____ .
3. Insulation efficiency:
   a. Average thickness of ceiling insulation _____ . What kind? _____ . Do you have an attic? _____ . Equipped with its own ventilating fan?_____ .
   b. Thickness of wall insulation_____ . What kind? _____ . Was a separate vapor-barrier installed?_____ . Or, if batts or blankets, do they have integral vapor barriers? _____ .
   c. Thickness of floor insulation _____ . What kind? _____ . Separate or integral vapor barrier?_____ . Thickness of basement or crawl space wall insulation _____ .

II. HEATING, COOLING ENERGY USE:

1. Type of heating:
   a. Forced-air furnace, steam or hot water boiler, ceiling cable, baseboard units, stove or other _____ .
   b. Fuel used: electricity, natural gas, propane, oil, coal, wood or other_____ .
   c. When was heating plant last cleaned or serviced? _____ . How often do you change filters?_____ .
   d. Btu output or kilowatt (KW) rating_____ . Age of heating equipment_____ .
2. Type of cooling:
   a. Central or room-sized unit(s)? _____ . Fan cooled only? _____ . Central exhaust fan? _____ . How often used?_____ .
   b. Energy source: electricity or gas? _____ .
   c. When was cooling equipment last cleaned or serviced?_____ . How often do you change filters? _____ .
   d. Btu capacity_____ . Age of cooling equipment _____ . Nameplate watts _____ and/or amps _____ . EER rating (Btu's divided by watts) _____ .
3. Heating and cooling energy use:
   a. Total bills for all non-electric heating fuel(s) used in last 12 months $ _____ . (Do not include water heater or cooking uses.) Total cooling bills (if gas air conditioner $ _____ .
   b. Total bills for all electricity used for, heating in last 12 months $_____ . (Do not include water heater or cooking uses.) Total cost of all-electric air conditioning $_____ . Fans $_____ .

PLEASE ANSWER THESE QUESTIONS FOR ME:

(Check boxes or fill-in blanks)

1. How much can I expect to save if I add _____ inches of ceiling insulation?_____ inches of wall insulation? _____ of floor insulation? _____ inches of basement or crawl space wall insulation?
2. How much can I expect to save if I ( ) install storm windows? ( ) Replace single-paned glass with double, insulated glass? ( ) Install storm doors? ( ) Replace uninsulated doors with insulated? ( ) Replace single-paned glass sliding doors with double-paned?
3. How much can I expect to save if I ( ) Modernize my heating plant? ( ) Modernize my cooling equipment?
4. How much can I expect to save if I (complete sentence yourself): _____ _____ _____ .

(Please print the following)

_____
Name Address

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City Zip

(You can save postage if you will return this form with your next bill payment!)

At right, the focus is on the best in Illinois agriculture as several breeds of cattle are judged at the fair. Other animals, such as poultry, swine, mules and sheep, are judged as well during the largest agricultural exposition of its kind in the U.S. At lower left is the arch to the popular midway, near the main gate. At lower right, while most of the fairgoers walk, others take to the air to get across the fairgrounds and see the sights. The area is filled with entertainment, exhibitions, special tents and contests that all Illinoisans can enjoy.

State Fair offers something for all Ill

The Illinois State Fair is set for August 9-19, and all the old standby features are still planned; some new attractions are in the works, too.

Illinois Talent on Parade, a daily variety show, will present the best talent from throughout the state. It will feature Illinoisans of all ages in every kind of act, and will be held in the Illinois Building Theater.

Racing buffs will be able to "Get the Feel of the Wheel," as cars of every description, displays and well-known drivers fill this huge exhibition. Fans will be able to talk to drivers and crew members, and climb into a car to catch the flavor of the track.

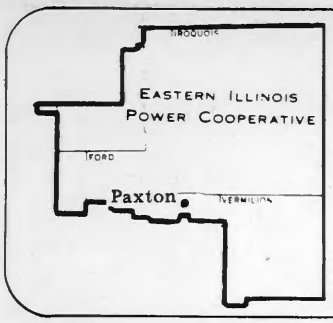
A Water Follies show is new this year, too, and the world's largest pools and stage are used to present the show. Champion stunt divers, water ballet scenes and lavish stage production numbers will make this two-hour show an attraction for many.

For alternative energy enthusiasts, there will be a Solar Hot Water Design Competition. The Institute of Natural Resources and the Illinois Office of Education have joined forces to

t the right, Len Koch of llinois Power Company was one f the speakers during the two-ay session. Below, power use nd member services represen-atives gather pamphlets and rochures on energy conserva-on and efficiency available uring the meeting.

Member Services Director of Jackson Purchase Electric Cooperative, Paducah, and Krista Kennedy of Western Kentucky Rural Electric Cooperative and a Residential Energy Advisor for the Tennessee Valley Authority. Norris focused on his cooperative's energy conservation and management plan and the various forms and worksheets used to complete home energy audits. Kennedy outlined how TVA personnel work with consumers for on-site inspections and audits.

Bill Simpson of Country Mutual Insurance Company, Bloomington, used a slide presentation to illustrate wiring problems facing both farmers and insurers. He showed several instances of inadequately wired hog confinement buildings, many of which had a high potential for fire loss unless changes were made.



E.I.P.C. News

EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

Low-Level and High Level . . .

Is Radiation Always Bad?

The word "radiation" is fast becoming a term that strikes horror in the hearts of those who hear it.

Actually, however, radiation has always been with us, reminds Louis B. Strong, president of Kentucky Association of Electric Co-ops:

"It has worked many wonders in the field of medicine. Today, we see the term on the front page of our newspaper and on the evening news. Radiation is an invisible, mysterious force that can be used to frighten and destroy or heal and serve mankind.

"We have always lived with radiation. As people, we even create our own radiation that affects those around us. The home in which we live, and much that surrounds us, produce radiation. The closer you live to the sun, the more radiation you get. A person living in Denver, Colorado, gets a lot more radiation each year than one living in a low-lying area such as Florida.

"Modern technology produced the X-ray that enables doctors and dentists to look inside us and diagnose disease, set broken bones and treat cancer and arthritis. But, each X-ray exposes us to a certain amount of radiation.

"It has now been determined that all this radiation produces some amounts of cancer. Just how much, we don't know. The Secretary of Health, Education and Welfare, testifying on the effects of the radiation from the Three Mile Island accident, said, "If every person living within five miles of the plant had received the maximum exposure, no additional cancer deaths would be expected above the 4,500 that would normally occur in that population group.

"The average normal exposure for the typical American from all sources, including medical X-rays, is approximately 225 millirems per year. The additional exposure from living next door to a nuclear plant would be less than one millirem per year. This is equivalent to the additional radiation you would receive from living at an elevation that's 100 feet higher than where you live now. So, a person living in Denver, for example, receives about 50 millirems more per year than someone living at sea level.

"The National Academy of Sciences Committee on the effect of radiation concluded in a report released May 2 following the Three Mile Island accident, that the health risk from low-level radiation is small and has not been under-estimated.

"Nationally-renowned scientist and nuclear expert Edward Teller told the congressional committee holding hearings on the TMI accident that nuclear reactors are not completely safe but they are much safer than anything else we happen to have.

"Professor Karl Cohen of Stanford University told the same committee that the TMI accident may well have proven that melt-downs in nuclear plants cannot happen."

Across the Manager's Desk

by D. L. Tachick, Manager

Powered Attic Vents May Not Save Money

A motor-driven attic fan used in a well-insulated home failed to save on the total amount of electricity needed to cool the house in a recent test made by the Sacramento Municipal Utility District in California.

In fact, the SMUD test showed that while the use of air conditioning did decrease in the test home when an electrically-powered attic fan was used, the additional energy used by the fan resulted in a net increase in energy consumption.

Free ENERGY AUDIT!

How do your home's heating and cooling costs compare with those of a model, energy-efficient home of the same size? COMPLETE & RETURN TODAY!

The program showed proper insulation was a key factor in cutting energy use. And, it did prove that air conditioning would be cut by using an attic fan, but that the air conditioning decrease was more than offset by the power needed for the fan. Passive venting or use of wind-driven revolving vanes is considered to be a good solution to heat build-up.

Bargain Insulation?

Insulation is no different from most other products. Bargains are readily available if you look for them.

A recent EIPC survey disclosed that the same brand of 3½-inch-thick glass fiber insulation batt could be obtained at retail for as little as 10¾ cents per square foot—or as much as 18 cents.

Are You in Hot Water?

Check that Element!

Do you have an ample supply of hot water? Does it meet the everyday needs of your household? Or, is it exhausted before you finish your shower, or begin to cool down when more than a few gallons are used doing the household chores?

If this is the case at your house, then your electric water heater apparently is not operating efficiently and the probable cause is dirty water heater elements. A clean element that is free of all mineral deposits will transfer heat more efficiently to the water.

A coating of mineral deposits and other impurities found in hard water acts as an insulator—making heat transfer extremely difficult. This coated element will seldom turn off, the quantity of water desired will never be hot enough and the thermostat controlling the element will constantly call for more heat.

Results? An inefficient element using excessive electricity, a shortage of hot water, a higher electric bill and dissatisfaction.

If you live in an area that has predominately hard water, and you know this by experience from scale build-up on your cooking utensils, and you have this type of heating element in your water heater (most people do), then you should make periodic checks and remove this built-up scale.

To do this your hot water heater must be turned off, drained and the element removed and cleaned. Care must be taken in such an operation to keep from damaging the element when removing from the water heater and when removing the scale. Sometimes a replacement may be necessary.

Another water heating problem is the accumulation of sludge in the bottom of the tank. This, also, should be cleaned out from time to time. All you need to do is open the drain valve on the bottom of the tank and drain the sludge off until the water runs clear.

A Point-of-Use Water Heater for You?

Your water heater is the second largest user of energy in your house. While it uses far less electricity, oil or gas than your furnace or other space heater, it will use far more than anything else does.

Water heaters require energy: 1. to heat the water you actually use; 2. to keep it hot while it's in storage waiting for you to use it and 3. to make up the heat the water loses as it travels from the water heater to wherever you're using it (see April, 1979, *EIPC News*).

There's not much you can do about reducing the energy the heater needs to heat the water to the various temperatures you demand—except to buy appliances that do their jobs with less water or colder water or perhaps develop a tolerance for colder hand-washing or shower water.

What if there were some reliable, well-designed, tankless, quick-heating device that could be hidden from view under a sink counter or in a bath vanity cabinet only a few inches away from the faucet or shower head it is supposed to supply? Not only would it completely eliminate the waste of keeping a large amount of hot water on standby, but it would also reduce the in-transit heat loss that occurs between the time you turn on the faucet and the time the water finally reaches the temperature you want.

(This flash heater could also reduce the waste that occurs every time you have to run the cold water with the hot because the temperature your dishwasher requires is far too high for the shower or the wash basin faucet.)

Well, there are at least two devices that answer this description *very closely:* One runs on electricity and the other on either natural or bottled gas. The reason we say they answer the description we gave above only *partially* is because we haven't tested them and we cannot recommend that you buy one or the other or any such device. We're only applauding the concept.

The Department of Energy (DOE) has calculated that the average American family of four uses 64.3 gallons of hot water per day. That's 23,470 gallons of hot water in a year's time. One popular 40-gallon, gas-fired water heater (storage type, of course) delivers 51.4 gallons per hour at a 90-degree temperature rise while using 107,000 Btu's per 100 gallons of hot water delivered—and that's only the energy needed to heat the water that's actually used. On a yearly basis, this equals 251 therms of gas that our four-member family requires.

Even if you don't use any water from the tank for a whole day, it will dissipate enough heat from the stored water to require 82,560 Btu's of energy input every day just for standby losses. That's 301 therms to keep the water on standby during the whole year—whether you use any or not.

The pipe losses we described in the April issue could easily add another 100 therms in a year.

Thorn Gas Appliances says its natural gas or bottled gas Powermaster heater can deliver 76 gallons per hour of 90-degree-temperature-rise water at an annual expenditure of only 235 therms for our typical family.

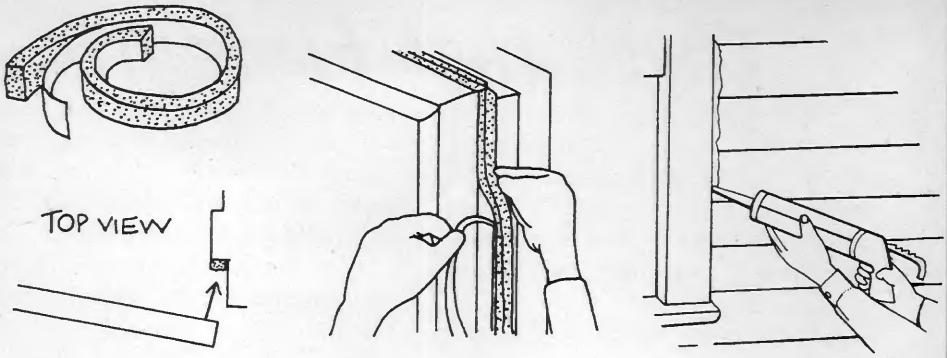
Subtracting this 235 therms per year from the total of approximately 652 therms a centrally located tank-type heater needs, the Thorn unit promises a whopping 417-therm, or 64 percent, savings in energy use. The electrical unit promises similar savings.

One drawback: These heaters are "point-of-use" heaters. This means that the average ranch-style house would probably need two of them unless all hot water piping is contained within a single wall perhaps.

For more information on the Thorn unit, contact Robert J. Kiley, president, The Kiley Co., 25 Valley Dr., Greenwich, CT 06830. On the Instant-Flow, contact Robert Russell, Chronomite Labs, Inc., 21011 S. Figueroa, Carson, CA 90745.

(Note: If you know of any other point-of-use water heater, please write to G. Garrett Smith at EIPC.)

energy efficiency



Simple home weatherization steps can cut your costs

Homes, both old and new, often have many cracks and openings, especially around windows and doors. Such cracks are heavy heat losers during the winter months, and are costly during the air conditioning season, too. Annoying drafts are present near windows or doors which need weather stripping. For example, most doors are fitted loosely so they will open and close smoothly. A crack of only one-eighth inch around a standard front door lets out as much heat as a 28-square-inch hole in the wall.

In a properly insulated home, air leakage can account for up to one-third of the heating costs; a good reason to weather strip and caulk to cut down on this energy waste.

One good thing about caulking is that it is an effective way to increase the comfort level and save money, and requires only a small investment. Another is that it is a fairly simple project for the average person.

Caulking should be done wherever two different parts of a house meet at a stationary joint, such as around windows, doors, foundation sills, chimneys, water faucets, vents, electrical outlets and pipes.

There are several kinds of caulking compounds available, and the prices vary widely. Generally, the long suit of the more expensive caulks is that they last longer, so you do not have to do the job very often.

Caulking compounds are available in standardized 11-ounce cartridges, each of which will draw a one-quarter-inch bead 25 feet long.

While shopping for caulking, keep in mind the following characteristics about various compounds:

Elastomeric caulks—includes silicones, polysulfides and polyurethanes. They are relatively easy to apply, give a neat bead, stick to most building surfaces, are long lasting and do not harden, so they will expand and contract slightly with the building. They are in the higher-cost range. Some require primers on porous surfaces, and some will accept paint while others will not. You will need to read the instructions on the label to be sure.

Latex, butyl or polyvinyl base caulks—easy to apply, bond to most surfaces, are moderately durable, in medium price range. Acrylic latex in premium grade is recommended for most applications.

Oil and resin-base caulks—readily available; bond to wood, masonry and metal. Their short (2-3 year) lifespan makes them less desirable than others, but they are the lowest in cost.

Lead-base caulk is not recommended.

If you need to fill a large gap, you may need to stuff in filler before applying the caulking compound. Oakum rope, caulking cotton, sponge rubber, fiberglass or self-sticking caulking cord should be used to fill extra wide cracks. Insulation scraps may also be used for this purpose.

To install caulking, clean the area of chipping or flaking paint, dirt and deteriorated caulk before applying the new caulk. Stuff filler in extra wide cracks as needed. Lay a firm bead which overlaps both sides of the crack for a tight seal and firm adherence to the substrate. Rough beads can be smoothed out or squeegeed off with a moistened finger tip.

There are several methods of weather stripping doors, ranging from applying adhesive-backed foam rubber to removing the door and cutting off part of it to install sophisticated devices. While the more complex methods offer advantages of more effectiveness or very long life, they may require installation by a carpenter.

Adhesive-backed foam is very

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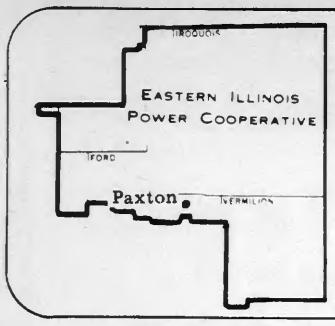
Tucker's Corners

(Continued from page 9)

looks much the same as it did back when Tucker opened it as a Cities Service dealer back during World War II. The front porch has been enclosed and a lean-to added to one side, but nothing else has changed much. The Cities Service clover gave way to the Humble sign, which was replaced by Enco. "We're Exxon now," Tucker notes.

After three decades of aging, the little crossroads community now seems to enjoy the peaceful sedateness of being firmly in the back-water of things. Tucker notes that one old custom went by the boards years ago. No longer does the mail carrier stop by in his Model A Ford every day for his customary fifty cents worth of gasoline, nor do the big oil rigs stop in, bringing in their hungry workers.

Looking back on his three decades in the little crossroads town, Tucker says, "I had a little store, just 18 by 24 feet, but it did a pretty good business for its size. Tucker's Corners is a nice little place."



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EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

Your Electric Bill...

EIPC's Cost = Your Price

Did your last electric bill seem to be as reasonable as it should have been for the amount of electricity you used the month before?

As a rural electric cooperative member, you are required to pay only as much money for your electric service as it costs to bring the service to you— no more and no less.

Each EIPC member pays only his share of the cooperative's total costs. The co-op's first members were billed that way in 1938 when the first lines were energized, and that's the way you are billed today.

If it costs $10 to bring electricity to your meter, that's what you pay—$10.

"Now," you say, "this system may work okay—and your annual accounting makes sure that you keep your rates in line with your expenses—but how do we know that the people who run the cooperative are doing the best job they can? How do we know that you try hard to keep expenses as low as possible?"

"The average person simply cannot be expected to spend someone else's money as carefully as he spends his own," you add. "That's just human nature."

This statement is undoubtedly true and it ought to be included in anybody's book of "Rules to Live by." However, common sense was no more scarce in 1938 when the cooperative was formed than it was in the 1700's when the U.S. Constitution was drafted. EIPC's founders made sure that certain very important checks and balances were built into the cooperative's by-laws. Members of EIPC elect directors from among their own ranks and those directors "direct" the running the cooperative in every sense of the word.

In accordance with the by-laws, then, the people who incur the bills are the same ones who pay the bills.

****

Another important function of the board of directors is to see that you are educated in how to use electricity as efficiently and economically as possible. This function also saves you money on your electric bill.

Just as every cooperative has accountants to monitor expenses and revenues, it also has engineers and power use advisors, or member services or member relations people whose jobs include showing members how to save every dollar they can on their electric bills.

Every issue of this magazine and the *Power Lines* newsletter that comes with your bill every month contains tips on how to conserve energy and save money on your bill. You are the loser if you don't pay close attention to the wisdom they contain.

Across the Manager's Desk

by D. L. Tachick, Manager

REA Looks Out for Your Interests too!

As EIPC's major lender ever since the cooperative began in 1938, the Rural Electrification Administration has always been concerned with the cooperative's economic health. However, in addition to requiring that margins are in correct proportion to expenses and revenues, REA also requires cooperatives to maintain certain engineering and operating standards.

REA-required standardization of lines, equipment and plant facilites has resulted in many economies that translate into substantial savings on your electric bill (even though you can't see them readily).

Now, as a result of its new nationwide conservation program, REA has already earned a leadership position among all national, state and local government agencies with its all-out campaign to help cooperative members cope with the energy crisis.

EIPC applauds REA for requiring all its rural electric distribution borrowers to adopt an aggressive energy conservation policy wherein all members will be provided with the information and other assistance they may need to make the most efficient use of energy.

Under this new program, cooperative borrowers are supposed to conserve energy in the operation of their headquarters and other facilities—and they are also supposed to report to their members any savings that have been achieved.

In compliance with that requirement, EIPC takes this opportunity to report that several steps already have been taken to reduce the cooperative's use of both natural gas and electric energy. We'll report our progress to you in later issues.

"Well, it'll be a chance to see if we have any leaks or I can just test the meter to see if it creeps any," I thought. I had to laugh, though. How many times have I told cooperative members that an electric meter is one of the most accurate measuring devices there is. Of course, the water and gas meters probably are too!

"You're on vacation now. Remember?" my wife reminded me. "You're doing all this testing and you're figuring our car mileage too. You won't be able to enjoy yourself."

Our 1972 Montego station wagon's miles-per-gallon performance had hit just short of 15 on our trip a year before. Pretty good for all that driving in the Smokies but I had torn the engine down to fix its valves the summer before and I was a little disappointed in the ½-m.p.g. improvement.

"We'll have a bumpier ride this year for sure," I warned my wife and son as I climbed in the car. "I've increased our tire pressure to 32 from about 24 and that means we'll feel every chuck hole from here to South Carolina!" On that stretch of Illinois 9 between Paxton and Rankin, we truly felt the first of the thousand bumps that were to come.

To make a long story short:

The ride *was* rougher, but we averaged 16.4 m.p.g. this trip—with the air conditioner on all the way, going and coming. Total miles traveled was 1,662, surely enough distance to make a valid test. (Gasoline in Illinois cost a minimum of 99.2 cents a gallon for 89 octane. In South Carolina and Georgia, it was 85.9 cents. We used Amoco, Standard or Shell exclusively.)

The 20-cu.-ft., frost-free refrigerator used only 26 kwh in the 156 hours we were gone. That figures out to an average of 120 kwh a month if we never open the refrigerator door. It had used 111 kwh in the nearly 500 hours of normal, everyday usage. That's an average of 160 kwh per month for this big, self-defrosting side-by-side refrigerator-freezer. (Your EIPC Member Handbook says a 15 cu. ft. frost-free should use 160 kwh per month, so our unit did okay for sure. It may be more efficient because it's a fairly new advanced model.

- Approximately 50 cu. ft. of gas were used by the water heater to maintain its thermostat setting of 120 degrees for 156 hours with no water being used. That figures out to 325 Btus per hour to keep 40 gallons of water (320 lbs.) warm. Since the definition of a Btu is: "the energy required to raise the temperature of one pound of water one degree," then our water heater tank loses about one degree per hour on standby when the utility room temperature averages 76 degrees.

(In winter, there's no real loss at all because the heat energy that makes its way through the water heater jacket out into the air in the utility room is open to the rest of the house, reducing the load on our furnace. In summer, these Btus, as well as those from our refrigerator motor *increase* the load on our air conditioner. So, the net cost of heating water and cooling food increases by a corresponding amount.)

- How much electricity is used by everything else in the house whenever we're on vacation? We'll have to wait for another trip to find out because the 100-watt bulb in the lamp I had plugged into a timer burned out at some indeterminate time during our absence.
- The water meter? It didn't move even a tenth of a gallon while we were gone. However, it sure did move when we got home; and so did the electric and gas meters!! The wife must have washed and dried at least four or five loads of clothes and ironed eight or ten shirts.

So, if you still think your monthly utility bills will reduce to about one-half when you're gone two full weeks, you'd better think some more. You're lucky if they go down one-fourth!

Energy Measurement...

Here are some of the most-often used energy measurements:

Barrels (bbls). 1 barrel equals 42 gallons.

British thermal unit (Btu). The energy required to increase the temperature of 1 pound of water by 1° Farenheit.

Quad. 1 quadrillion Btu's.

Watt. The amount of power available from an electric current of 1 ampere (amp) at a potential of 1 volt.

Kilowatt (kW). 1,000 watts. One kilowatt is the equivalent of about 1⅓ horsepower.

Kilowatt-hour (kWh). 1,000 watt-hours. A unit of electrical energy equal to the energy delivered by the flow of 1 kilowatt of electrical power for 1 hour. (A 100-watt bulb burning for 10 hours will consume 1 kilowatt-hour of energy.) One barrel of oil equals 500 kWh.*

Megawatt (mW). 1 million watts, or 1,000 kilowatts.

Cubic foot (cf). 1 cubic foot = the volume of a cube whose length, width, and breadth each measure 1 foot.

Mcf. 1,000 cubic feet (of natural gas).

Therm. A unit of heat equal to 100,000 Btu's.

Energy units translated into Btu's:

1 kilowatt-hour = 3,413 Btu's.**

1 ton of bituminous coal = 23,730,000 Btu's.

1 bbl crude oil = 5,800,000 Btu's.

1 gallon of gasoline = 125,000 Btu's.

1 gallon of No. 2 fuel oil = 139,000 Btu's.

1 cubic foot of natural gas = 1,024 Btu's.

1 Mcf natural gas = 1,024,000 Btu's.

1 therm of gas (or other fuel) = 100,000 Btu's.

Each year in the United States we use about 70 quadrillion Btu's of energy. To produce this energy, it would take about:

3 billion tons of coal or
12 billion barrels of crude oil or
700 billion therms of natural gas or
20 trillion kilowatt-hours of electricity,

or any combination of these sources that, converted into Btu's, would add up to 70 quadrillion.

* Rounded from 492.7 kWh.

** Based on an approximate 29 percent generation efficiency for electricity.

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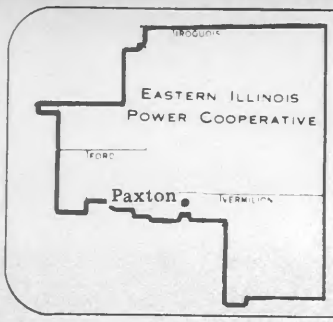

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EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

Across the Manager's Desk

by D. L. Tachick, Manager

Soyland Power Co-op

Some nuclear power for EIPC in 1983

Eastern Illinois Power Cooperative is one of 27 electric distribution cooperatives in Illinois and one of 934 in the United States.

EIPC also is one of 15 members of a generation and transmission cooperative known as Soyland Power Cooperative.

Of the 934 rural electric cooperatives in the U.S., 387 belong to generation and transmission (G&T) cooperatives which generate all of their power requirements.

Of the 934, 198 belong to G&Ts which generate only a part of their requirements (the category EIPC will fit into when Illinois Power, Soyland Power and Western Illinois Power Cooperative begin sharing the output of the nuclear power plant at Clinton). Another 64 belong to G&Ts which have no generation or transmission facilities available to them. (Sometimes called "paper G&Ts.")

The remaining 285, nearly a third, must bargain individually with investor-owned companies for their power supplies.

EIPC will begin using nuclear power in 1983.

Nuclear power is cheaper!

A newly completed survey sponsored by the Atomic Industrial Forum (AIF) shows the costs of nuclear-generated electricity remained stable in 1978, while electricity generated at coal- and oil-fired plants rose moderately.

AIF reported that a nuclear kwh cost 1.5 cents to produce in 1978, about the same as for the previous two years. Each coal-generated kwh cost 2.3 cents in 1978, up from 2.0 cents in 1977 and 1.8 cents in 1976. And, an oil-produced kwh rose to 4.0 cents from 3.9 cents and 3.5 cents for 1977 and 1976, respectively.

The stable nuclear costs over the past three years reflect the modest impact of rising nuclear-fuel prices compared to fossil fuels, says AIF. In 1978, nuclear plant fuel costs averaged out to 22 percent of total production costs, while coal was 55 percent and oil 59 percent.

Nuclear generation in 1978 was equivalent to 135 million tons of coal or 470 million barrels of oil.

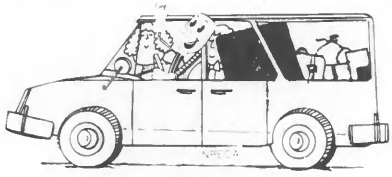
REACT

Report All HAZARDS . . . For Safety's Sake

Vacation energy usage...

"Come on, now," my wife pleaded as she opened the car door. "We'll never make it to Lexington before dark!"

"I'll be right there," I answered. "I have to read the gas and water



meters first." I moved the beer mugs she had arranged so neatly on top of the refrigerator so I could open the little cabinet door over the refrigerator. I had placed one of EIPC's test meters in the cabinet and plugged the refrigerator into it exactly 497½ hours before that—on July 19th—and I wanted to get a current reading so I could determine how much electricity it would use just sitting there—with no one opening its doors for a full week while we were out of the house on vacation.

This was a rare opportunity to compare the refrigerator's standby kwh usage with its normal, day-to-day usage.

I wrote down the four digits and hurried outside to the gas meter. "Might as well," I thought. "There'll never be a better chance to see how much our old water heater uses just sitting there with no one drawing any water out of it for a whole week."

The heater's main burner was off and I congratulated myself for picking a time when the tank was completely full of hot water. That way, every cubic foot of gas it used would be used to maintain a set temperature until we returned home.

I went from there to the water meter near our back door. I had no special reason for monitoring water usage because there wouldn't be any while we were gone. I had already unplugged the automatic water softener and it was the only thing that could have used any water anyway.

the remaining $16,500.

Aside from a few complaints from some families who used fewer but higher-priced kwhs, little discontent was detected anywhere else in the little town.

Then, Hiram Jones, owner of the big dry goods store on Main Street, decided to install the town's first air conditioner in his store. Soon as Jim Drake heard about Jones' plan to install air conditioning, he wanted one for his restaurant, too.

At first, this growth in demand seemed to be a good sign. Jones and Drake explained to the board how their payments would far exceed the extra fuel costs. However, the additional generating capacity required by the two big air conditioners could easily upset the fine balance of supply and demand that had been working so smoothly.

The board had no choice but to add a second generator--another 375-kw unit because of rumors that a dress factory wanted to locate just downstream at the site of the old mill. Their plant would place an additional 250-kw demand on the system during every summer, but during nine months of the year, the one generator's capacity would still be adequate.

The board soon realized that it had a new kind of problem: Revenue of $30,000 per year was now required to pay all expenses and loan interest. The two air conditioners and the factory machines would add to the system's summer peak load but the store, the restaurant and the factory wouldn't use enough kwhs the year around to pay for the added generator capacity they themselves had caused to be added.

The other people in town could not be expected to help subsidize the businesses by paying higher rates—even though they could now shop and eat out in comfort and even though the women in town could now earn extra money every summer in the factory. Some way had to be found to charge the store, the restaurant and the factory their fair share of the added costs.

A rate consultant was retained. He explained to the perplexed utility board members that the old combination demand and energy rate they had been using wouldn't work in this case. Big users who make it necessary to install higher capacity generators would have to begin paying an additional charge for "demand."

The consultant worked out a dollars-per-kw scale that was based roughly on the cost-per-kw of the extra generating capacity that had to be added. He also recommended a third rate step of only 1.75 cents per kwh for a growing number of consumers who were using more than 1000 kwh per month and a fourth step of 1.5 cents for users of 2000 and more kwhs per month. He explained how the new rates would encourage higher consumption and keep the second generator busier during more months of the year.

Some two years after World War II began, the U. S. Army signed a contract with the dress factory to make thousands of uniforms. The factory expanded, built temporary housing for 200 new employees and moved them to the valley town. A portable, olive drab Army generator was hauled to the lot next to the Eagle Valley power plant and hooked up.

By the end of the war, most of the factory's employees had decided to stay in Eagle Valley. They built new homes on the East side of the valley. The town grew and grew and the power plant grew and grew.

Now, 35 years later, visitors to the huge Wildlife Sanctuary between Eagle Valley and Apple Junction are impressed by the clean, well-designed, efficient-looking power plant that was built in 1970 to serve both of the small towns, the clothing factory, the cannery and the Sanctuary.

Some of the visitors stop at the famous Eagle Valley Restaurant on their way in or out of the valley. Many of these folks marvel at Mr. Drake's framed display of two electric bills—the first he ever received, dated July 30, 1939, and the other bill he got just last July 30.

The first bill, now yellowed with age, reads "752 kilowatt-hours: $15.04."

The newer bill shows a 30-day consumption of 7,500 kwh and a total dollar amount, including tax and fuel adjustment, of $314.75.

Restaurant owner Drake, currently chairman of the Eagle Valley-Apple Junction power board, takes pride in pointing out to his guests that the price he pays for a kilowatt-hour of electricity increased only 100 percent during those 40 years while the price of bread went up 350 percent—from 12 cents a loaf in 1939 to 54 cents in 1979.

(The accompanying chart, from the July 5, 1979, issue of *Public Utilities Fortnightly*, shows a 170 percent increase in bread prices and only 33 percent in electricity prices from 1948 to 1978. Anti-utility, no-growth advocates please take note. —Ed.))

Junk Box Parts

Frozen Pipe Warning Device

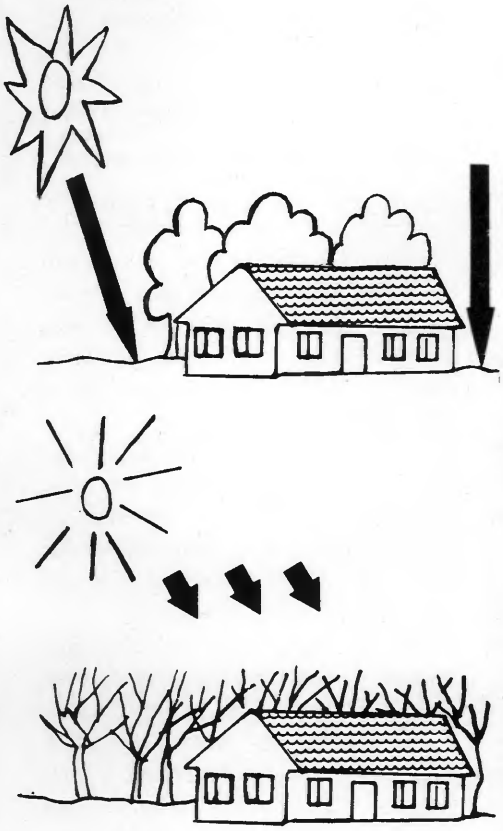
Former *EIPC News* Editor Cy Anderson, who "retired" in May, 1977, came by the office the other day and told us he had just heard about a cheap but very effective frozen pipe warning system that can prevent serious water damage in the event of a heating plant failure while you are away from home during freezing weather. Here's how it works:

Wire an extra line-voltage heating thermostat so that it will switch on a light or a buzzer to warn a neighbor if the temperature in your house falls below whatever you've set your regular thermostat on.

Say you've decided you don't want your house temperature to fall below about 55 degrees while you're away for a few days around Christmas time. You set your regular heating thermostat on 55 degrees and your warning system thermostat on 50 degrees.

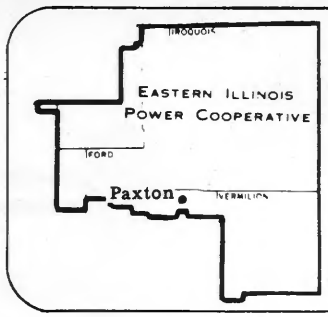
That way, if your heating system fails or if your windows break and let in the freezing wind, the warning light or buzzer will alert a neighbor to investigate.

If you use batteries instead of house current, you won't have to worry about power failure. The line voltage thermostat won't know the difference between six volts and 120.



about 40 percent over the loss with single glass only. Insulating glass (double pane plus one-quarter-inch to one-half inch air space) plus storm windows may reduce the single glass loss rate by 60 percent.

But this still leaves a relatively enormous loss rate when compared to the loss through walls, even uninsulated walls. Put another way, a one-quarter inch thickness of plywood is nine times better an insulator than a one-quarter inch thickness of glass.



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EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

One from 1939, One from 1979

Two Electric Bills

There were only 125 homes in the little valley town when they built the first power plant 40 years ago. Some 20 of the families already had their own small gasoline-powered generators but all agreed to join the other 105 families and buy their power from the new Eagle Valley power plant when it got started.

Power needs were simple then. Adding up the wattages of all electrical equipment, lights and irons a family was likely to turn on at any one time, the average peak demand per home was determined to be no more than about 3000 watts even in the cold of winter or the heat of summer. A special committee of the town council, its new power board, decided to order a diesel generator of 375 kw (375,000 watts) capacity–which just happened to be the same size as the one Apple Junction had for sale. Apple Junction also had a population of 500 and the generator had served their needs admirably for five years until the cannery moved to town and nearly doubled the demand. Apple Junction's new 1000 kw generator was now on line and producing power.

The Eagle Valley power board decided to go ahead with the purchase of the barely adequate, used 375-kw generator, reasoning that, since there was little land in Eagle Valley for industrial or commercial expansion or for suburban development, there was little likelihood of increased demand for new capacity in the near future.

The townspeople waited impatiently to be served by the new electric plant. They purchased electrical appliances of every description: lamps, irons, toasters, refrigerators, pumps and motors. The utility board's conclusion that Eagle Valley residents would buy the same electrical equipment and appliances that Apple Junction citizens had bought proved to be correct.

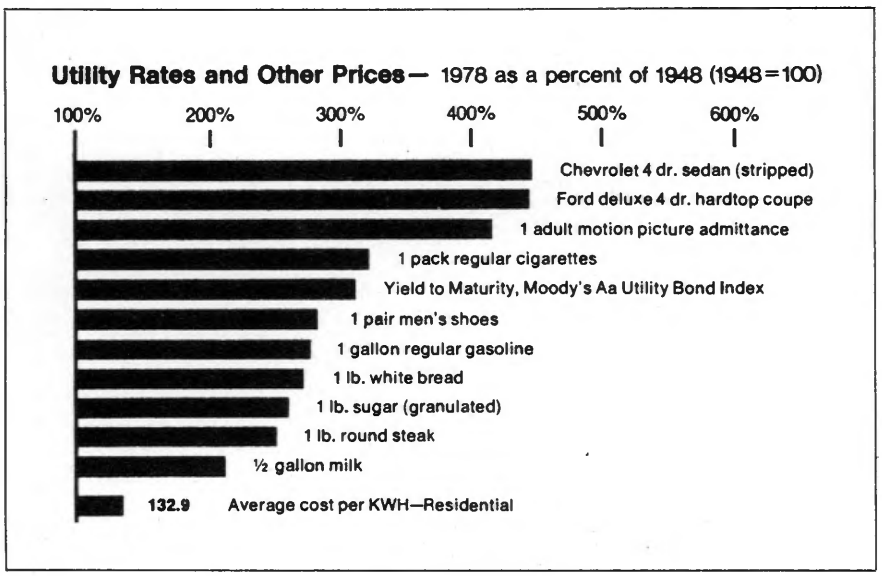
There was every indication that the rates the board had set would cover all expenses, pay for the generator and all the poles and lines and even provide enough extra to pay for a new generator about ten years in the future when the old one was expected to wear out.

The two cent per kilowatt hour (kwh) rate the board set was calculated to bring in revenue of $12,000 per year, or about $100 per family, and it did so the first year--and the second.

In the third year, however, the generator's main bearing gave out one dark, moonless night. A frantic search for a new bearing was unsuccessful. The board had to purchase a new generator. Fortunately, however, the diesel engine was still as good as new. Unfortunately, the new generator cost as much as the original engine and generator together. The board found it had to increase rates to three cents per kwh in order to pay for the new generator. Revenue needs increased to $18,000 per year.

The pending rate increase touched off demands by the largest energy users that a new two-step rate be designed so that users of more than 300 kwh per month could continue to pay only two cents per kwh for their usage in excess of 300 kwh. Other complainants argued that users who closed their homes in the winter weren't paying their full share of the cost of facilities such as poles, lines and transformers. The board yielded to these demands and designed a rate they thought would end all claims of unequal treatment.

Total consumption of the little 125-consumer system remained nearly the same but everyone now had to pay a one dollar per month 'facilities charge' to pay for fixed costs that went on whether he used any electricity or not, or a little or a lot. This charge brought in $1500 per year and the new two-step rate brought in



Getting ready to hoist the big, two-ton, 65-foot pole.

Up...

Down...

EIPC's new Cissna Park Substation was energized on October 8th. The new substation, the cooperative's 15th, will relieve loads on the Buckley, Paxton and Wellington substations as well as provide improved service in the Cissna Park area.

Earlier in the year, concrete was poured; heavy aluminum framing, transformers, regulators and breakers were bolted in place; a control shack was built; distribution lines were brought in and the area was fenced.

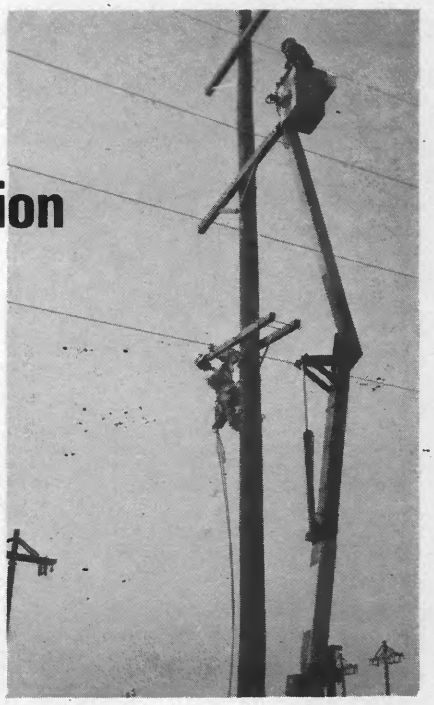
Then late in September, a line crew left Paxton one morning to set the big transmission line pole that would carry Central Illinois Public Service's 69,000-volt transmission line into the substation. This pole setting was one of the last operations prior to energizing the substation.

The accompanying photos were taken as the crew hoisted the 65-foot pole, complete with crossarms and hardware, dropped it into its 10-foot hole and attached the thick, heavy steel and copper lines to the big insulators on the crossarms high in the air.

The EIPC line crew shown in the photos is made up of line foreman Don Brinegar, subforeman Larry Niccum, apprentice lineman Vernon Miller and groundmen Mike Calhoun and Everett Kirby.

EIPC Energizes 15th Substation

and In!



All that's left is to attach the insulators and the heavy transmission line.

McDonald

Former REA official

McDonald selected new IVEC manager

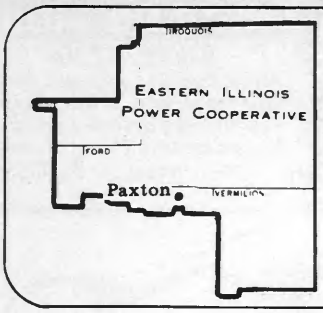
Thomas R. McDonald, interim general manager of Illinois Valley Electric Cooperative since August 6, has been named general manager of the Princeton-based electric distribution cooperative.

McDonald replaces M. M. Jontz of Princeton, who retired effective August 10, after 21 years service as manager of Illinois Valley. Prior to his appointment in 1958, the Princeton native was general foreman for the cooperative.

McDonald retired on October 6, 1978, after a 28-year career with the Rural Electrification Administration. At the time of his retirement, he was the assistant administrator for the electric program, assisting the REA administrator in conducting the rural electric loan program on a national basis.

A native of Cedar Rapids, Iowa, McDonald graduated from Marquette University, Milwaukee, Wisconsin, in 1949 with a degree in electrical engineering. In 1955 he received a law degree from Blackstone College of Law in Chicago. He is a registered professional engineer. He joined the REA staff as an engineering trainee in January 1950, and served in various capacities throughout the nation, including 10 years in field positions. He was an assistant power supply officer for six years and in 1970 was appointed chief of the Engineering Branch, North Central Area—Electric. The North Central Area includes Illinois, Wisconsin, Ohio and Iowa.

Illinois Valley Electric Cooperative provides electric service to more than 5,500 member-owners residing in Knox, Bureau, Putnam, Stark, Lasalle, Marshall and Kendall counties.



E.I.P.C. News

EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

Electric Motors

... Your Home May Have More Than 40!

The other day, a friend asked me how many electric motors we have at our house. He said the "average" family has 35 to 40.

Well, I thought, I'm far from average in this case. There's no way my house could have more than 10 or 12 electric motors. "Your information must be wrong," I told him.

"Okay," he countered, taking up the gauntlet I had just thrown down. "Start counting." He pulled a list out of his pocket. "I'll read a category and you answer how many electric motors. What about your furnace room?"

"Fan motor, humidifier motor and water softener valve and timer."

He held up four fingers in an uncouth display of triumph. "That's four already," he said. "Refrigerator?"

"Compressor motor, evaporator fan motor and defroster timer motor." That made seven already and we hadn't been in the kitchen two seconds.

"Dishwasher?" he asked smugly.

"It's got a drive motor, a timer and a dryer motor."

"Range?" A smirk crossed his face.

"We've got a gas range and there's no. . ."He had me again. "Well, there's the hood fan motor," I admitted.

"Food mixer, blender, knife sharpener, can opener. . ." He punctuated each word with a chuckle. "Vacuum cleaner, hair dryer, water softener timer and valve. . ." I couldn't believe he could do this. "Hi-fi turntable, tape recorder, clocks, fans, bathroom and kitchen vent fans, sump pump. . ." His voice trailed off as if he had lost all sense of time and place.

"You wouldn't want to forget our grass trimmer and the fan in that little portable heater." I didn't care. My mind was racing. It was searching frantically for more motors—just so my former friend wouldn't think of them first. "That new electric hair brush the wife has! My paint compressor! The drill! The saber saw!" I shouted in hysterical glee.

Then it hit me: We hadn't been in the utility room yet! I started to blurt out the word "washing machine" but I stopped just in time. If he wants to include the motors in the washer and dryer, let him bring them up! I thought. "How many is that? About 15? 16?"

He ignored me. "Then there's your automatic washer, your dryer." It was like he had read my mind. "The drive motor, the timer. The drive and fan motors in your dryer," he went on and on. "Then there's the dryer's timer motor." He had abandoned all semblance of civilized, humane behavior.

"I'm surprised that you need to be reminded about the air conditioner condenser fan and and compressor motors," I reminded him. He ignored me again.

"Now, how many electric clocks do you have?" he asked slowly and calmly as though he were a first grade teacher. "We've counted only one so far, you know. The average family has two or three."

"Four," I answered.

"How's that? I can't hear you. If you said 'four,' then your total comes to. . . Let's see. . ." He counted slowly and deliberately. "Forty-two. You've got 42 electric motors in your house!" he announced triumphantly.

"Okay, you got me," I admitted. "Now, let me lay one on you. I'll bet you $1.13 that we operate all 42 of those electric motors for less than 75 cents a day!"

"You're on!" he recoiled, anticipating a windfall. "Show me!"

"Our monthly electric bill for baseload (all our electrical usage except heating and air conditioning) runs about one dollar per day."

"I believe you said '70 cents' and not a dollar!" he shot back.

"Yeah," I responded gingerly. "But that includes some massive usage by the electric heater coils in the clothes dryer and the dishwasher—even in the hair dryer, the little portable heater and the electric comb. It also includes all our other uses, too: lights, TV, radios, the iron and all."

It'll be the year 2090 before I've collected all of the $1.13. Herb and his wife have been taping a penny to the Christmas card they send us each year!

In 'Hot Water' With Your Water Heater?

Each year, approximately 2,600 persons in the United States suffer scald injuries caused by excessively hot tap water. The U.S. Consumer Product Safety Commission has found that children under 5 and adults over 65 are most often the victims.

In June, 1978, the CPSC received a petition which requested, among other things, that the CPSC issue a consumer product safety rule requiring that new residential water heaters have a maximum thermostat setting of 130 degrees. Dishwasher manufacturers and others, however, recommend a minimum temperature of 140 to 150 degrees. The Commission voted in March, 1979, to defer decision on the petition until more information could be gathered and assessed.

One solution would be to install a point-of-use flash water heater near the dishwasher, perhaps under the counter in an adjacent base cabinet or in the sink cabinet. These heaters (whether gas or electric) can quickly boost hot water line temperatures of 120 degrees to the required 150-degree water but a hotter temperature may be welcome in some circumstances. (See Aug. 1979 REN, Page 13)

Set back the thermostat on your hot water heater to decrease or eliminate the dangers of tap water scalds--and to save energy. A thermostat setting of 130 degrees is high enough for most purposes and you'll conserve energy while you're conserving dollars.

If you have to run cold water with your hot water to temper it and make it comfortable to use, you're wasting energy someplace.

New Energy-Saving Fluorescent 'Bulb'

Everybody knows fluorescent lights use less electricity than incandescent lights. The only thing is, fluorescents don't fit in everywhere.

Even though they're much more efficient (they use 56 percent fewer kilowatt-hours while giving just as much light), they're seldom found anywhere but in the kitchen, the bathroom, the shop or the office. Now comes a major manufacturer with a small, circular fluorescent tube that has a base just like a regular incandescent light bulb. The diameter of the circular tube is much greater than the largest part of an incandescent bulb and it won't look good in that fancy dining room chandelier, but it'll work very nicely in a lot of floor and table lamps and in many open-socket ceiling fixtures.

Okay, say you've got a couple of places in mind where you could use the new fluorescents. Will they save you enough money to pay for themselves in a reasonable length of time?

Well, the ads say the fluorescents need only 44 watts to shine as brightly as a 100-watt bulb. That's a savings of 56 watts. To put it another way, you would save 56 watt hours every hour it's on—or one kilowatt hour every 18 hours or so. If you use the fixture 36 hours a week, you would save about eight kilowatt-hours a month. At 5½ cents per KWH, the savings would come to 44 cents a month. At that rate, it would take you from three to four years to recover the $15 to $20 cost of the new fluorescents. That is, if electric rates remain the same. If rates go up, the payback period would be shorter.

Are they worth it? Our opinion is that they are worth their high cost. Fluorescents last a long time and should pay for themselves two to four times over before they need replacement.

Your Generator Needs A Transfer Switch!

Standby generators MUST be properly connected to your wiring system or you could be denied further service by this cooperative!

Transformers that reduce the 7,200 volts in EIPC's distribution lines down to 440, 220 or 110 volts can also work the other way. Even a small, 110-volt generator can send a dangerous 7,200 volts out on the power line if it is improperly connected.

Improper connections could not only ruin your generator in an instant, but could contribute to the hazards a lineman already faces in the blizzard, ice storm or tornado that caused your outage! He could be killed!

A double-pole, double-throw transfer switch is the only kind of equipment that this cooperative can authorize. Such a switch will select either EIPC's power lines or your generator as the power source, but never both!

EDITORIAL

What's their REAL objective?

Back in the early 40's, the air in Louisville, Ky., my home town, used to be so full of coal soot that little piles of it would blow around on front porches like drifting snow when I used to go around on my paper route.

The other night, I saw the old Clark Gable movie, "Saratoga," on TV. One brief scene showed the Louisville skyline in 1938. That is, it looked like the skyline. You couldn't tell for sure because the smoke was so thick.

My family and I returned recently from a short stay in that same town. Today, with a population three times what it was in 1938 and a dozen times more industrial production, Louisville's air is now nearly as clear as it is in rural east-central Illinois.

We have come a long way and we have made monumental progress in improving the quality of life in every town with a factory, a foundry or a power plant.

By rights, the environmentalists should be sitting down on a rock like Alexander, lamenting that they have no more worlds to conquer. Instead of resting on their considerable laurels, however, they have become more militant and wild-eyed than ever before.

How can this be? Have communications among the various motley cadres of environmentalists broken down? Don't the Champions of the Snail Darter, the Guardians of the Whooping Crane and the Protectors of the Louse-wort share the news of their victories anymore? Is it possible that they haven't told each other that they've won their war?

Before you drop everything to go tell Ralph and Jerry and Jane that they can stop obstructing progress now, think a minute: Communications among these fellow travelers haven't really broken down. Observe closely how well coordinated the next nuclear power plant fence-cutting party is. See how the several allied groups can unite to carry out their transmission line sabotage as flawlessly as a combined military operation.

Could it be that a clean environment never was the true objective of these people? Could it be? The real objectives in this warlike assault are still the Establishment and the American Way of Life. Each and every major Capitalist world power has the same problem with these obstructionists.

The power plant smokestack, the nuclear generating plant cooling tower, the oil pipeline and the gas storage tank are almost like military targets except that the bombs and shells thrown at them are environmental impact statements, moratoriums, petitions and legal briefs.

Make no mistake, there's no denying the motives and the sincerity of most of the young people who demonstrate in the name of a clean environment. Through the turbulent Sixties, however, as each new wave of wild-eyed zealots matured and its members grew to be more responsible, they abandoned their banners and placards to pick up lunch boxes and go to work in the same factories and plants they cursed the year before.

We have no quarrel with this faction because we enjoy a sparkling clean stream as much as they do. These people eventually realize that the battle is over when the offending industry cleans up. It's the others, the ones who engineered the demonstrations, planned the logistics, picked the targets and recruited the naive young people from the campuses that we consider the real enemies of a strong America. —*Garrett Smith*

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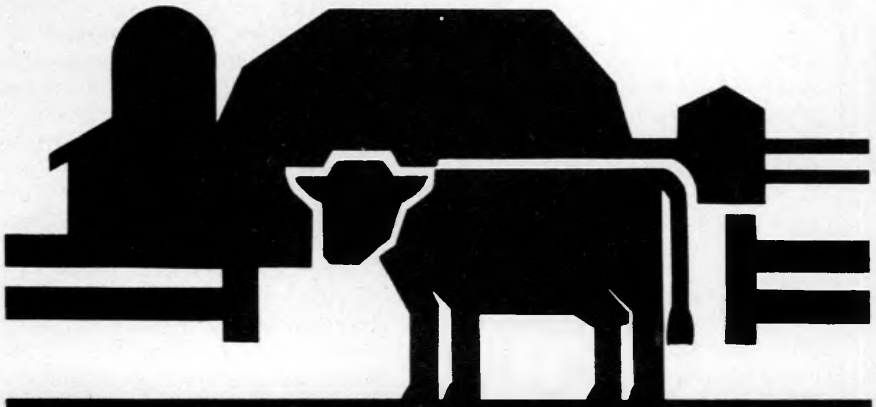

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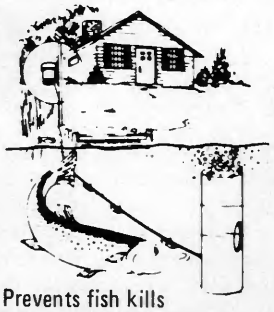

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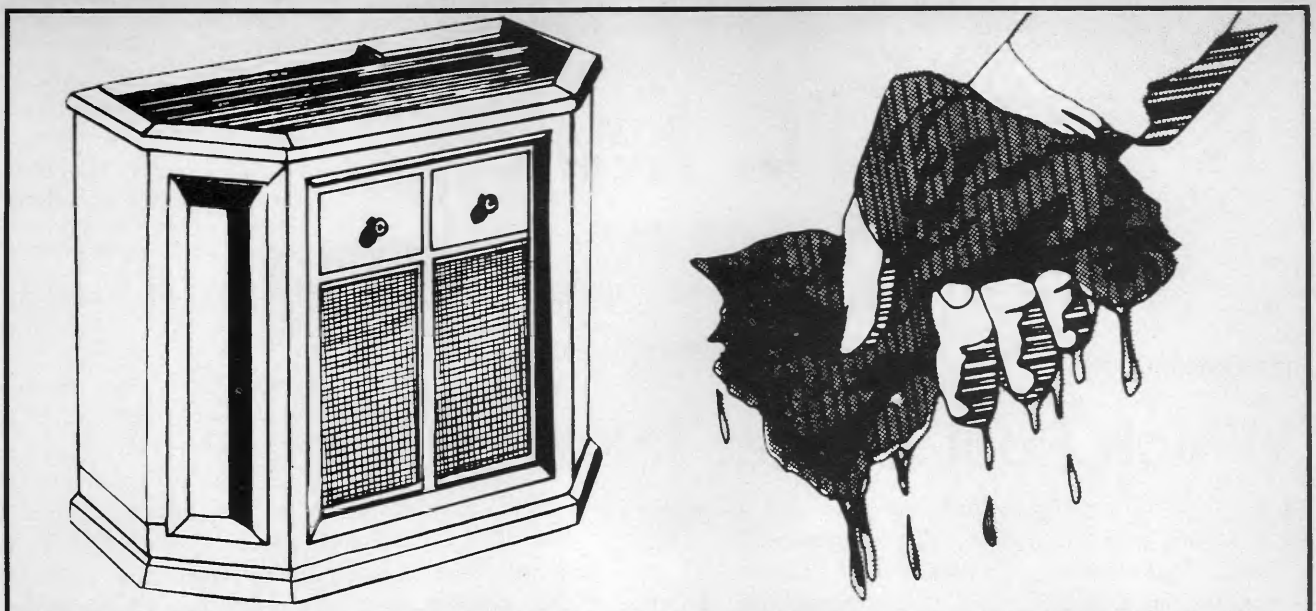


Portable humidifiers are becoming an increasingly popular appliance in the home. Proper humidification during the heating season can make for more comfortable surroundings, but it is possible to over-humidify a dwelling. Among the problems which can occur because of over-humidification is too much moisture in the insulation material, which can cause a reduction in the insulation value.

and similar water-consuming activities. Water vapor from these activities will increase the indoor relative humidity.

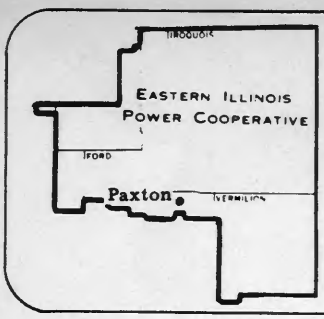
High levels of humidity during winter can cause condensation on inside colder surfaces such as window glass, inside surface of metal grills of exhaust, inside surfaces of exterior walls, ceilings, reduce insulation effectiveness and possibly cause water vapor to consense and accumulate in the framing and building materials. As a result, the ultimate cause can be deterioration of structural members if such moisture condensation is quite frequent or continuous.

Usually, such high moisture production is related to excessive use of humidifiers, water seepage in the basements, no vapor barrier over damp ground and crawl spaces, water seepage into heating ducts located under a slab, unvented clothes dryers, improperly vented gas hot water heaters, unvented gas space heaters or similar items. Homes that usually have good vapor barriers in the walls and ceilings, but no vapor barrier above ground crawl spaces and inadequate exhaust fans in the kitchen, bathroom and laundry room, will have sufficient moisture accumulation. Also, electrically heated homes (no combustion air needed) with low air infiltration rates, normal rates of household water vapor production and a vapor barrier in the ceiling may have considerable moisture buildup.

Some methods of decreasing the humidity levels in the home involve 1) installation of a dehumidifier, 2) installation of adequate exhaust fans for the kitchen, bath and laundry areas, 3) installation of humidistats to control bath and laundry exhaust fans, and 4) proper ventilation of clothes dryers. The exhaust air from these ventilation fans should be vented to the outside air. All exhaust fans should also be equipped with an automatic back-damper which prohibits the reverse flow of undesirable air.

Table I, based on date published by the National Association of Home Builders, can serve as a guide for attaining a proper humidity level in the home. It shows the indoor relative humidity at a point of which condensation will occur, assuming the inside air temperature is 70 degrees F., for both single and double glass windows at various outdoor temperatures.

In conclusion, there are many situations which would tend to cause low humidity and high humidity levels in the home. The activities within a home greatly affect the house's atmosphere. Therefore, try to achieve a desirable "mid-range" relative humidity level of approximately 35-40 percent in the home and on extremely cold days, when the outside temperature is below average, approximately -10 degrees F., adjust the humidistat to a lower setting in order to avoid or reduce moisture accumulation or condensation in the home. A precise formula for attaining a proper humidity level cannot be simply stated due to the many variables which affect humidity levels. Contact your local cooperative if you need more specific information in attaining the proper humidity level based on the activities within your home.



E.I.P.C. News

EASTERN ILLINOIS POWER COOPERATIVE 217-379-2326 PAXTON, ILLINOIS

The Bottom Line

Which Fuel Is Best for You?

How well do you like the fuel your heating plant uses? One thing's for sure: whatever kind you use costs a lot more than it used to — but, so do all the rest.

Perhaps a better question might be: If you built another house or if you were somehow faced with the problem of having to choose the type of heating fuel that will be used somewhere, what kind would you pick?

Unfortunately, and whether we admit it or not, many of us allow emotion to guide us when we select the things we buy. It doesn't seem to make much difference that the purchase is a major one or a minor one. We usually buy even high-priced items like cars, refrigerator, clothes dryers and water heaters with little more care than we shop for a car wax, a detergent or a paper towel. A neighbor's casual remark to you about a high electric or oil bill may influence an important buying decision that could affect your bank account for many years, when the high bill may have resulted from nothing more important than a late meter reading or a fuel tank that was allowed to empty out more than usual.

There's one good way to reduce distracting influences and remove most if not all of the emotion from your deliberations about which heating fuel to choose: Just as you should pick an insulation by its price per R-value, you should choose a heating fuel by its Btu (British thermal unit) content. (A Btu is defined as "the amount of heat energy required to raise the temperature of one pound of water one degree Fahrenheit.")

A gallon of the kind of fuel oil you would burn in a furnace has about 141,000 Btu's in it when you buy it, but the average oil furnace can't wring much more than 90,000 Btu's out of it.

A gallon of propane has 92,000 Btu's but you can't get more than about 60,000 out of it.

One KWH (kilowatt-hour) of electricity has 3,413 Btu's.

One therm of natural gas has 100,000 Btu's in it but, again, an average gas furnace can't derive more than about 65,000 Btu's from it.

At $.882 per 141,000-Btu gallon of oil (the November, 1979 price in Paxton), you get about 1,600 Btu's for a penny. By the time you subtract the Btu's of heat that escape up the chimney and the Btu's required to "*re*"heat the cold air that infiltrates your house to replace the combustion air your furnace burned along with the oil, you end up getting fewer than 1,000 Btu's for a penny.

Comparing the cost of electric resistance heat at $.036 per KWH (3,413 Btu's), you get only 948 Btu's for a penny. A heat pump with a COP (coefficient of performance) of two can get twice that yield, or about 1,900 Btu's.

Natural gas at $.29 per therm (100,000 Btu's) gives you 3,448 Btu's for one cent–which reduces to a net of about 2,155 Btu's after subtracting flue and combustion losses.

To recap, you can net 1,000 usable Btu's from a penny's worth of oil, 948 to 1,900 from electricity, 2,155 from natural gas and 1,237 from propane.

Right now, in December 1979, natural gas is by far the best buy, but price controls have been lifted and the price will stabilize at a level near the others in a few years. Eventually you will have little choice as to the best price and each Btu will cost the same.

EIPC Employees Take First Aid Training...

Most of EIPC's outside employees successfully completed a special first aid course last month. Instructors of the cooperative-required, Red Cross-sponsored course were Line Superintendent Herschel E. Workman and Apprentice Lineman Lyle D. Kofoot (standing, left photo).