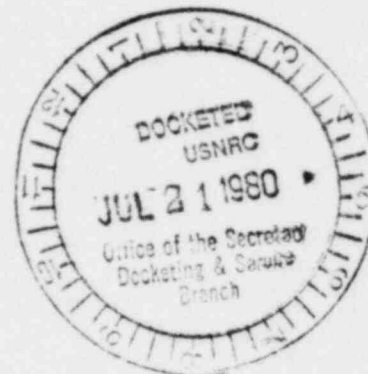


RELATED CORRESPONDENCE



Statement of
Randy Freeman, member-owner,
Pierce-Pepin Electric Cooperative
Before the
Subcommittee on Conservation and Credit
Agriculture Committee
U.S. House of Representatives
March 19, 1980

My name is Randy Freeman. I reside at Box 232, Rural Route 1, Hager City, WI, 55014. Since August of 1979 I have served as a member of the Pierce-Pepin Electric Cooperative's Task Force on Alternative Energy. Pierce-Pepin Electric Cooperative is one of the 29 member co-ops of the Dairyland Power Cooperative, headquartered in La Crosse, Wisconsin. The Alternative Energy Task Force was created at Pierce-Pepin's last annual membership meeting as a result of a three year effort by an organized group of co-op members who sought to turn the co-op away from participation in a planned nuclear plant and who wanted the co-op to take a serious look at conservation and alternative energy technologies as ways to meet future energy needs in our service territory. The task force has four members at large, including myself, and three members from the board of directors. We are to present a report to the membership at this year's annual meeting in April.

Because the task force has not completed its report, and because some of the more controversial recommendations have not yet been voted on, the sub-committee should realize that in the following remarks, I am speaking for myself. Several members of Pierce-Pepin, including one director, want me to communicate their intention to send letters to this committee endorsing my comments at today's hearings.

In our work since August, the task force has investigated the co-op's conservation potential as well as the following new energy supplies: small hydro at existing dams in the area, consumer-owned wind power projects, a solar hot water heating program, solar grain drying, consumer-owned micro-hydroelectric systems and the use of passive solar construction techniques. We have limited our attention to devices or strategies which produce or displace electrical energy. As a result of our work so far, I cannot concur with the impression left by NRECA that co-ops have taken or are planning adequate conservation measures. The point I want to make today is that a much greater emphasis on conservation and alternative energy is required at all levels of the REA system.

The very first thing the task force discovered was the importance of conservation in future utility planning. By conservation, I mean any program to reduce peak demand or electrical energy consumption. New capacity now on the drawing boards of co-ops across the country will cost as much as \$1200 per kilowatt for coal plants and over \$2000 per kilowatt for nuclear plants. I view the explosion of power plant costs over the last decade as a crisis which demands an immediate re-ordering of cooperative priorities and reform of many co-op policies. Until co-ops enter into conservation and load management programs with the same enthusiasm and funding levels now reserved for new power plants, neither NRECA nor anyone else can seriously claim that the work of electrical conservation is underway in the nation's co-ops.

Conservation surveys sponsored by NRECA are a poor way of determining rural electric co-ops' level of commitment to conservation. Although truthful and prepared in good faith, I believe that the response filed by my co-op shows how this data can be misleading. One figure which can be easily extracted from the form is the estimated expenditure of \$26,000 on 1980 conservation efforts.¹ In a context of meaningful policies and planning, such a figure would be impressive. A closer look into Pierce-Pepin's and Dairyland Power's operations reveals, however, no effective conservation plan. As a member I have to wonder what I'm getting for my money.

I believe that the way to determine whether co-ops are serious about conservation is to examine their Power Requirements Studies, Load Management Studies, Advance Plan filings and retail rate proposals. I have done just that for my two co-ops and found no serious commitment to either conservation or alternative energy. It worries me to think that these documents become the basis of REA loan applications, and will eventually determine the cost of my electricity.

Before accepting the idea that co-ops are well down the road to energy efficiency, this subcommittee should ask co-op representatives the same questions I have asked Dairyland to consider before proceeding with a planned 50 percent increase in capacity by 1987. That is, how much expensive new capacity will the utilities' conservation efforts displace in the next two decades? And, how much capacity could be saved by a greatly intensified effort?

In my study of Dairyland's Advance Plan² for the next ten years, I identified the following conservation alternatives which were not considered:

--A crash program to shift all existing and anticipated controllable loads to off-peak times. Electric heat, hot water heaters and future solar back-up installations are the obvious targets for such a plan which would involve the use of timers or centralized switching, loans to members for the installation of increased heat storage capacity and a retail rate structure which would make participation in the program attractive to consumers. Controllable loads such as these currently make up nearly one-quarter of Pierce-Pepin's peak demand.³

--Retail rates which reflect the reality of today's energy costs and encourage conservation. Pierce-Pepin does not yet have flat rates or a definite timetable for achieving flat rates. To my knowledge, none of the wide variety of innovative rate designs such as time-of-day or inverted rates are presently in use in the Dairyland system or planned for use in the future.

--A weatherization program for every existing electrically heated building. Such a program which featured audits and loans to members would also be a good vehicle for refitting electric heat installations with off-peaking capability.

--The use of incentives or penalties to see that all new electrically heated buildings meet a very high standard of efficiency. Houses constructed and monitored in our climate by the Mid-America Solar Energy Complex (a DOE funding outlet in the midwest) have demonstrated that homes which are carefully sealed during construction, which use triple-glazing on north, east and west windows, which meet an insulation standard twice as strict as present codes require and which use air-to-air heat exchangers to insure fresh indoor air and provide humidity control can pay off all their conservation-oriented features in three years or less.⁴

--Active co-op promotion of agricultural and other appliance efficiency improvements. The Wisconsin Energy Office has predicted in testimony before the state's Public Service Commission⁵ that one device alone--heat exchangers for cooling milk and heating water--can be responsible for a twenty percent reduction in Wisconsin's agricultural electrical energy use by the year 2000.

Only when Dairyland Power has evaluated the impact on demand and provided cost estimates of such measures should anyone assume that Dairyland and similar co-ops are serious about conservation as an alternative to new plant construction in the 1980's.

In the area of alternative energy, I find the same situation in my co-ops: plenty of opportunities but little will to proceed. As with conservation, Dairyland's advance plans demonstrate that the Wisconsin co-op has not integrated alternative energy into its forecasting procedures or its investment plans for the 1980's.⁶ I also found that a few institutional problems in the REA loan program itself prevent co-ops from taking certain steps to promote alternative energy.

Before detailing these problems, I should give some examples of the new energy that programs of the type not now available could produce in my co-op's service territory. I believe that Pierce-Pepin, in cooperation with two neighboring co-ops could develop up to four megawatts of small hydro at existing dams by 1990.⁷ A concerted wind program could produce one megawatt of consumer-owned capacity by 1990 and another ten megawatts by the year 2000. The co-op itself could install at least .75 megawatts of wind plants by 1990 and up to 8.25 megawatts by the year 2000.⁸ In addition, co-op members could displace perhaps four megawatts of demand with solar domestic hot water systems by the year 2000.⁹ The possible maximum contribution of passive solar building techniques is hard to quantify but should be sizeable. Remember that all of this potential is in a co-op that now reaches only 16 megawatts of peak demand.

Everyone, including Dairyland Power, admits that the initial high capital cost of most alternative energy systems inhibits their greater use.¹⁰ Yet, according to a letter from Frank W. Bennett of REA to the Pierce-Pepin task force, "at this time, REA has no provisions for financing alternative energy systems (solar, wind, biomass, etc.) for installation by members or by distribution cooperatives."¹¹ Mr. Bennett also reminded us that Pierce-Pepin is required to purchase all of its energy from the G&T co-op, Dairyland Power, and that Dairyland would have to pursue any loan applications.

The use of all-requirements contracts to stifle alternative energy projects is very disturbing to me. In testimony before the Wisconsin Public Service Commission, Jack Leifer, Assistant General Manager of Dairyland Power,

admitted that DPC has no plans to develop wind power projects of its own in the foreseeable future; also that distribution co-ops such as Pierce-Pepin are prohibited from conducting their own wind power projects and finally that the same contract prohibits distribution co-ops from purchasing excess power from member-owned machines.¹² It is true that Dairyland itself will purchase such excess power, but at a low rate which discourages such sales and under conditions which greatly increase initial installation costs.¹³ What we have then, is a package deal to suppress the use of wind power. This is especially discouraging in the light of recent indications that the wind power resource in Wisconsin is much greater than commonly thought, according to Dairyland's own measurements and testimony.¹⁴ The task force has found that there are commercially available wind machines which can produce power in the Wisconsin wind regime at a cost competitive with power from new coal or nuclear plants.¹⁵

In connection with the problems surrounding alternative energy development by rural electric cooperatives, I recommend the following changes in REA loan policy, some of which may require legislation.

REA loan funds should be made available to consumer-members for the purchase of their own alternative energy hardware at the lowest interest rate available through REA. These loans should be handled by the distribution co-ops at cost and paid back with monthly billings on the model used by TVA and other progressive utilities. The guidelines for this program should be quite liberal, perhaps limiting any one consumer to a maximum amount over a certain period. REA could require that qualifying systems be intended to produce or displace electricity and that the system be expected to payback during its useful lifetime. I believe that any REA program of consumer loans should be funded out of existing REA funds and get priority over other power plant applications.

REA should loan funds directly to distribution co-ops for renewable energy plants up to a certain date, perhaps 1000 KW per installation. This would allow co-ops to exploit local energy resources that are too large for individual members to develop but are too small to interest G&T co-ops. The distribution co-ops would still have to meet REA need and cost criteria, but would not have to go through the G&Ts and satisfy their internal prejudices as well. This program should also be funded out of the regular

REA budget now earmarked for capacity additions. In proposals where economics are marginal or feasibility is untested, REA should give some weight to considerations of whether the proposal has an overriding environmental benefit, whether it brings a renewable resource into use or whether it has an exceptionally long service life (as in small hydro.) Once such an approved small-scale plant goes into service, REA should take steps to protect small cooperatives from absorbing the total investment cost alone. This could be done by requiring that a G&T co-op purchase all energy from such projects at cost, then sell it back at the wholesale rate.¹⁶

REA should no longer require distribution co-ops to enter into all-requirements contracts with their G&Ts where such arrangements prohibit the purchase of energy by distribution co-ops from individual members or from their own generating equipment. All such contracts in force should be immediately revised.

Referring back to my comments on conservation, I would like this sub-committee to consider some additional recommendations. They are all designed to put conservation and alternative energy in competition with further power plant construction for the same investment funds. Few co-ops think in terms of end-use services for members. They still feel pressed to provide electrical generating capacity for any anticipated use even if these uses do not conform to national energy policy, energy efficiency requirements, wise resource allocations, rural values, rural needs, social and environmental concerns or even the best economic interests of co-op members. I believe that REA and Congress can guard member interests and expand the services which co-ops provide by considering these ideas:

Congress should resist the temptation (as expressed in bills like HR 5397) to establish special conservation or alternative energy funding programs. I am afraid that we would end up with more stagnating initiatives like the little-used FWHIA rural weatherization program. Special funds only insulate co-ops from the need to consider conservation as an alternative to future plant construction. In my view, only minor tinkering with the present REA loan process will be necessary to cure co-ops of their conservatism.

In reviewing loan requests, REA should require applicants to file

end-use forecasts and to provide a detailed analysis of how the desired new electricity is going to be used.

In reviewing loan requests, REA should require co-ops to prove that the same goal (capacity equal to demand by a certain date) cannot be achieved for less cost by an alternative investment in conservation, load management and new member services.

REA should give first access to the lowest cost money for loans needed to underwrite conservation projects.

In reviewing retail rate proposals, REA should require the distribution co-ops to file a timetable for achieving flat rates where that is not presently the practice. REA should promote inverted rates in the coming decade and enforce a ceiling on service charges. REA should require every co-op under its rate regulating authority to devise a plan to translate their demand charge from power suppliers into the retail rate structure (via time of day or some other method.)

REA should require its G&T co-ops to use a demand charge system where that is not presently the case. Under this method, fuel costs and fixed cost of service costs are retrieved through a flat per kilowatt-hour charge while power plant capital costs are recovered through a per kilowatt demand charge.

When studying loan applications for load management systems, REA should be alert to the effectiveness of the proposal. An examination of Dairyland's load management study reveals these flaws:

- 1) Existing manageable loads would not be controlled.
- 2) The system is not integrated with a retail pricing strategy.
- 3) The proposed system does not provide for a future acceptance of solar heating and wind electric systems into the DPC grid.
- 4) The proposal depends largely on a non-existent controllable load: dual-fuel furnaces. The promotion of these devices might leave co-op consumers of the 1990's heating their homes with five dollar per gallon oil on-peak and 10 cent electricity off-peak.
- 5) As the program matures and the peak is levelled, dual-fuel furnaces will depend more and more on oil or natural gas.

If instituted, these relatively simple reforms would make co-ops realize the importance of seeking innovative ways to serve member needs for energy while at the same time respecting the national interest in careful resource use.

I want to thank the subcommittee for allowing me to appear today with a view of co-ops that might not otherwise have been presented. I would also like to acknowledge the financial help from relatives and friends which made my travel from Wisconsin to Washington possible. Ultimately, my expenses will be covered through bake sales, firewood raffles and other fund-raising events put on by the tireless energy activists in Wisconsin. In the future, congressional committees might consider covering travel expenses of witnesses who are the owners of rural electric cooperatives but who are not paid utility executives, employees of utility lobbying organizations or professional environmentalists.

FOOTNOTES

1. I am referring to the "Energy Conservation Questionnaire" filed by Pierce-Pepin with NRECA. The compiled results of the NRECA survey have been used to defend that organization's contention that RECs are practicing conservation in a big way.

2. Revised 1978 Advance Plan, filed July 15, 1979, prepared by Dairyland Power Cooperative and the other western Wisconsin utilities in response to requirements of Wisconsin law and Wisconsin Public Service Commission orders.

3. The Pierce-Pepin Alternative Energy Task Force arrived at this estimate through a member survey in the summer of 1979. There were 1100 responses out of a possible 4000, making this the best end-use survey ever done by Pierce-Pepin.

4. MASEC NEWS, January and February issues have articles on energy efficient houses in Northfield, Minnesota and Cedar Rapids, Iowa.

5. "Prepared Direct Testimony" of Gregory C. Krohm before the Public Service Commission of Wisconsin, Docket No. 05-EP-2.

6. See (2) above, p. 7-11, "While the use of alternative energy systems is admirable...Dairyland and its member cooperatives are moving cautiously in this area..." See also 1978 Power Requirement Study, Pierce-Pepin Electric, filed May 7, 1979, p. 30: "In summary, the anticipated effect of alternative energy utilization on the power requirements of Pierce-Pepin Electric Cooperative is minimal." See also my comments on Dairyland's proposed load management system later in this statement.

7. List of dams:

<u>County</u>	<u>Site</u>	<u>River</u>	<u>KW at retirement</u>	<u>Potential after ref:</u>
			<u>Rating</u>	<u>Rating</u>
Dunn	Elk Creek	Elk Creek	125 KW	?
Dunn	Eau Galle	Eau Galle	360	?
Dunn	Colfax	Red Cedar	1200	?
St. Croix	Hudson	Willow	300	?
St. Croix	Little Falls	Willow	300	?
St. Croix	Willow Falls	Willow	600	(1000 KW +)
St. Croix	Mounds	Willow	180	?
St. Croix	Mc Clure	Apple	160	?
St. Croix	Huntington	Apple	640	?
Pierce	Spring Valley	Eau Galle	new dam	(360)

8. "all-out" wind program

1990 goal:

<u># of machines</u>	<u>Owner</u>	<u>Ave. size</u>	<u>Total Cap.(KW)</u>	<u>Total Energy (KWH)</u>
10	Co-op	75 KW	750 KW	1,971,000 KWH
100	members	10 KW	1000 KW	2,628,000 KWH
				<u>4,599,000 KWH</u>

2000 goal:

110	Co-op	75 KW	8250 KW	21,681,000 KWH
1000	members	10 KW	10000 KW	26,280,000 KWH
				<u>47,961,000 KWH</u>

This scenario assumes an average capacity factor of 30 percent. The low availability factor of wind machines indicates the need to integrate a concerted wind program with a load management system that relies heavily on heat storage capacity in the grid. This was suggested by Dr. Carel C. DeWinkel in his report on the Dairyland Power system, An Assessment of Wind Characteristics and Wind Energy Conversion Systems for Electric Utilities. He reiterated the importance of wind/load matching in recent testimony before the Wisconsin Public Service Commission.

9. Assumes a peak time water heating load of 4000 KW (4000 or more electric units times 1 KW coincident demand) by the year 2000. Load management can achieve this same goal with or without solar. Solar would probably be of more benefit to the consumer.

10. Advance Plan, p. 7-11, "Most alternative systems, especially those designed for space heating, are characterized by high initial cost, maintenance and long 'payback' periods." REA financing should solve this problem nicely.

11. Frank W. Bennett, Director, North Central Area, REA in a letter to Kenneth Peterson, Secretary, Pierce-Pepin Electric Cooperative, dated Dec. 4, 1979.

12. John P. Leifer, "Direct Testimony" Wisconsin Public Service Commission hearings, 1980 and under cross-examination at WPSC Advance Plan Hearings, 1980.

13. "Electric Service Agreement for Member Owned Generation System," Dairyland Power Cooperative. This is an eleven-page contract giving DPC the right to ratchet the house meter rather than letting it run backwards at times of excess wind generation. Another meter must be hung at the machine to measure that excess energy for which DPC will pay only 1.5 cents per KWH. DPC reserves the right to visit the machine at any time, disconnect the machine at any time, shut off the members' power at any time and the right to require unnecessary safety systems. These absurd disincentives must be paid for by the machine owner. There are cases in Wisconsin where co-op members have abandoned wind power projects because of DPC's attitude.

14. 11 MPH annual average is often cited as Wisconsin's wind speed. 10 MPH is thought to be the "breakeven point" at which wind power should be considered. Dairyland's wind measurements at Alma, WI show annual averages of 17 MPH at 165 feet and 12.6 MPH at 20 feet. For some reason, DOE is interested only in sites with speeds in excess of 14 MPH annual average.

15. The task force found several machines in the \$1000 per kilowatt range and one as low as \$700 per kilowatt. With state and federal tax incentives, these machines can be expected to pay back in ten years or less and to provide electricity at a cost as low as 4 cents per kilowatt-hour.

16. The rationale for this argument: even if an alternative energy project was more economic than a new central station plant planned by a G&T, a distribution co-op could not pursue it because the cost of power from the project would be higher than their wholesale cost of power from the G&T which represents a blend of old (cheap) plants and newer plants. A distribution co-op should be freed from this economic penalty so that it could pursue projects that were economical compared to the marginal cost of power.