UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

RELATED CORRESPONDENCE

In the Matter of	
DAIRYLAND POWER COOPERATIVE	Docket No. 50-409
(La Crosse Boiling Water Reactor)	Full-term Operating License

INTERVENORS' SUPPLEMENTAL RESPONSE TO STAFF INTERROGATORIES

1. Intervenors intend to present the following individuals as witnesses in support of their contentions

A. a. Ernest Sternglass

b. Randy Freeman
member of DPC, Hagar City, WI

c. Russell Bentley
manager of Windfree, Oregon, WI, sales and installation of wind machines

d. Tom Galazen
writer, Turtle Lake, WI

e. Jeffrey Littlejohn
field researcher, Another Mother Fund study
Stevens Point, WI

B. The desired information will be provided in the notes to these answers.

C. Intervenors have made no such independent calculations. and can not speak to those that may be used by others.

2. To answer this question intervenors must refer back to the Final Environmental Statement which assures us, as members of the public, that LACBWR is and will continue to comply with Appendix I, Part 50. Also, we were assured in the Draft Environmental Statement that LACBWR was in compliance with App. I, thus complying with the ALARA standard which takes into consideration the site technical specifications. Yet some undeniable violations of ALARA have occurred in the intervening years that have not been addressed.

In this answer we make reference to an accident that occurred at LACBWR during Cycle 4, and was made public in an ACRS hearing of Jan.

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1978, not more than 3-4 months prior to intervenors' original petition in this FTCL proceeding. The accident to which we refer is perhaps the best example of our understanding of the ineffectiveness of App. I restrictions, and how we reached the conclusion that App. I can and no doubt is often violated by LACBWR.

It is intervenors' understanding that ALARA can by no means be correlated to an operating condition that could ever be termed "safe" in an absolute sense, but rather relates to the capability of each reactor on an individual basis, as outlined in their tech. specs. And during Cycle 4, in the year 1978, LACBWR was operating under an administrative limit, or what they construed to be a tech. spec. of 1,000 curies per day, which effectively meant both stack releases and off-gas. This exceedingly high limit was set in 1973 after Cycle 2, when LACBWR staff committed never to exceed what at that time was felt to be an acceptable fuel condition.

The 1,000 curies per day was established not as a protection for the public, but as an indicator of fuel condition.[1] And quite rightly so, for if the NRC had been primarily concerned with the safety of the public, this unbelievable level of radioactive releases would never have been tolerated, and the plant would have been shut down immediately.

In the opinion of the intervenors, the operation of LACBWR with such levels of off-gas is a clear violation of the ALARA guidelines, which require that radiation exposures be kept "as low as reasonably achievable". Yet is is clear that LACBWR personnel knowingly used less equipment than they were capable of using at that time. Dairyland had had a hold-up system on-site for years that they had been bypassing which when hooked up for Cycle 5 reduced the curies out the stack by anywhere from a factor of 5 to 16.[2]

The cost of effectively utilizing the gas storage tanks supplied with the original system was negligible in comparison to the great reduction in releases to the public, and as such constituted non-compliance with the ALARA principles outlined in App. I of Part 50.

Intervenors' assertion that App. I was violated by this accident is corroborated by those within the Nuclear Regulatory Commission as well. According to Mr. Lake Barrett, Division of Operating Reactors, "when all is said and done, it is correct that Appendix I might be more limiting than the 1,000 curie per day administrative limit".[3] Moreover, responsible individuals within Dairyland were unaware of these critical considerations of Appendix I.[4]

DPC was thus able to operate LACBWR in clear violation of ALARA for many months, yet no mention was ever made of this fact in the FES. The dangerous and reckless act of poor judgement on the part of LACBWR personnel to complete Cycle 4 before shutting down for an analysis of the problem was of no major concern to the LACBWR safety review committee. Operation was continued on the justification that they had never had gross fuel failure before, and certainly did not expect it then.[5]

And in this instance, what has been termed the worst accident in the history of BWR's was allowed to continue at our local reactor for months on end, because ALARA, as a regulatory guideline, has no teeth. On this basis it becomes logical for members of the public to conclude that ALARA and concomitant tech. specs. really provide no assurance of the safe operation of LACBWR, and thus are totally inadequate as protective or safeguard measures for the public. All parties concerned admit that they have no idea as to the calculation exposure of the

nearest inhabitant to the plant with an off-gas and stack release rate of 1,000 curies per day. Dose calculations depend on the meteorological assumptions used, and neither the industry nor the NRC had yet defined those models or assumptions.

According to Mr. Barrett, however, estimates have ranged anywhere from several millirads to 100 millirads, depending upon meteorological conditions. And 10 millirads for a gamma air dose would correspond to 5 millirems whole body. A figure of 10 millirads per year is close to the Appendix I limitations. The actual releases may well have been some ten times the Appendix I guidelines.6

The shock, anger and dismay of local residents with regards to this accident are feelings not easily forgotten or assuaged. Actions on the part of both LACBWR personnel and the NRC such as we have outlined here leave little if any room for trust on the part of the public for this industry and the agency that regulates it.

For these reasons trite assertions in both the DES and the FES that LACBWR is in compliance with Appendix I, with no reference to said violation, will no longer suffice. If ALARA guidelines have proven ineffective in the past, why should we believe that such operating guidelines will be any more effective today or tomorrow. The burden of proof lies heavily with the NRC.

3. Intervenors ascribe to the linear theory of radiation effects, and contend that any increase in exposure results in increases in physical damage to the human body. Since any dose to individuals is harmful, then calculated doses are unnecessary to prove harm to humans. In support of our contention we submit citations 7-25, all of which are critical studies relating both to dose calculations to workers and the public and the health effects of low-level radiation, certain levels of which are deemed acceptable under current NRC regulations.

CREC believes that the dose calculations used by the NRC staff do not accurately reflect real doses received by the public from off-gas emissions. For example, in the FES off-site doses are calculated assuming a flat terrain. In light of this and the fact that the terrain surrounding LACBWR is anything but flat, the dose calculations for the general public are necessarily hopelessly inaccurate.

Intervenors also contest the accuracy of off-site calculations on the grounds that dose calculations represent a 50 yr. dose commitment which would be received by the population during only one year of exposure. We realize only too well that those living around LACBWR do not stay in the area for one year's dose and then leave. Many spend their entire life near the plant. Therefore, any calculations that do not consider doses over years are completely misleading and inaccurate. If dose commitments were correctly calculated over the many years of exposure, it is clear that such commitments would far exceed limitations set forth in 10 CFR Part 50, Appendix I.

Intervenors assert that at the present time LACBWR is in violation of restrictions set forth in 10 CFR Part 20 with regards to exposures to the public because estimations of the radiological doses to representative individuals in the surrounding area are not in the FES, and most especially dose calculations for those in the worst receptor area of the plume, those receiving maximum exposure. See again reference 10 and 11 for a reasonable discussion of this issue.

Moreover, an assertion that LACBWR is in compliance with 10 CFR

Part 20 becomes quite unacceptable when one considers that population dose commitments are calculated without extending to several half-lives or 100 years beyond the period of release, and that there is no attempt made to consider either quantitatively or generically the world-wide impacts. Clearly, the total environmental impact is not being fully considered. Since the NRC staff itself admits that they can not possibly make such calculations, and knows of no one who could do so,26 to insist that such doses are within established limits is misleading and simply inaccurate.

It is the position of the intervenors that residents in the area surrounding LACBWR are receiving doses in excess of the 25 mrems whole bo allowed members of the general public, according to 40 CFR Part 190, the EPA's Environmental Radiation Protection Standards for Nuclear Power Operations, as the result of exposures to planned discharges of radioactive materials to the general environment from uranium fuel cycle operations and radiation from these operations.

Intervenors have no dose calculations for worst case public exposures as such. However, this is in part due to the absence of both NRC and DPC calculations in this respect. Intervenors have engaged the services of Dr. Ernest Sternglass in an attempt to make these calculations. He will provide further testimony on the issue of radiation exposure and its effect upon humans.

4. The number of individuals affected by LACBWR's emissions and the degree to which they are affected varies, primarily according to meteorological conditions and releases. In that this area is both a tourist and dairy area, the numbers of individuals affected may be impossible to estimate. Suffice it to say, we believe that far larger numbers of people are affected than those to which the NRC cares to admit. With the assistance of our witness, Dr. Sternglass, at such time as an evidentiary hearing stage is reached, we intend to further and more fully address the issue. At this time we are still in the process of gathering information.

5. In that LACBWR is located in an agricultural area along a major river, this question may also be impossible to answer. We do feel that the dose calculations arrived at by the NRC staff are unacceptably small, and the Heidelberg report will support this position. Dr. Sternglass will testify on this report as well.

6. In answering this question intervenors should point out that their understanding of employee dose commitment includes any exposure occurring as a result of the off-gas system, including maintenance (routine and non-routine). The basis for this assumption is that off-gas releases find pathways to humans through stack releases, filter and resin bed changes and other maintenance procedures. Again, we assert that the worker exposure calculations are insufficiently precise and that the effects of such exposures are far more harmful than the NRC at this point will acknowledge.

It is with a great deal of confusion and concern that CRBC addresses the entire issue of worker exposure. What exactly are the exposure limits which the NRC considers acceptable for nuclear

workers? On the one hand Robert Minogue, NRC Director of Standards Development and Karl Goller, then NRC Director of Siting, Health and Safeguards have been quoted as stating that "workers must be informed that no radiation is good radiation, there is no threshold dose, and workers must be told the truth. Specialized workers will have to determine their individual choice."[27]

And on the other hand the Northeast Utilities booklet which is distributed to their workers states that "no danger exists as long as workers are not exposed above NRC limits".[28] At this point we must ask, how are nuclear workers able to make any accurate evaluation of occupational risks and "determine their individual choices" on the basis of patent lies of this sort?

That the NRC is no better in terms of honesty and consistency is established clearly in the Draft Regulatory Guide and Value/Impact Statement of May 1980. On the issue of risk from Occupational Radiation Exposure this official document states that "genetic effects have not been observed in any of the studies of exposed humans".[29] Not only does such an assertion absolutely negate previous statements by Minogue and Goller, but it shows that what the NRC says and does are two entirely different realities.

To add further to this confusion, as though the foregoing facts were not sufficient to bring doubt to the minds of the many, it has only recently become a matter of public record that the NRC, while publicly maintaining again and again that the maximum permissible dose for nuclear workers is 3 rems/quarter, for a maximum of 12 rems/year, actually allows workers to legally receive an extra 5 rems a year internal dose[30]. Thus, a nuclear worker's maximum permissible occupational exposure is really 17 rems a year, far in excess of the claims of the NRC in all official correspondence we have encountered in our readings of 12 rems a.year. Only in March of this year did William Dircks, Acting Executive Director for Operations finally stipulate that present 10 CFR Part 20 does not preclude combined internal and external doses to workers, thereby conceding that workers could legally receive a maximum of 17 rems/yr.[31]

Are we to assume that this disparity was due to a simple oversight on the part of the NRC, or was it a deliberate attempt to keep from the public facts which when generally understood, will lead us to the inevitable conclusion that the risks associated with nuclear power are far too great for the benefits it provides for both individuals and and the population as a whole. The NRC's permissable occupational exposure limit is some 680 times the 25 millirems whole body allowed the general public under EPA regulations, as set forth in 40 CFR 190.

One might understandably inquire then as to how regulators can maintain that nuclear power exposes the public to only a minute level of radiation compared to natural radiation, with the knowledge of the 17 rem/yr. calculation. This apparent contradiction is resolved by the determination that "personnel" are not legally considered part of the public. By definition, "any person inside the boundary of the plant is no longer a member of the population".[32] This preposterous legal determination is both convenient and absolutely essential to the continued existence of the domestic nuclear power industry.

With the aforementioned facts in mind, which exposure limits for workers does the NRC intend to use in the PTOL proceedings? As one can imagine, the answer makes a great deal of difference to those of us concerned with specific limits rather than nebulous and subjective

references to ALARA and estimations of doses to workers rather than real doses, as provided by the NRC staff in its FES. Interestingly enough, nowhere in the FES were we able to find a precise elaboration of what maximum permissible occupational exposures were. Readers are only provided with references to to virtually indecipherable tables in Vol. 10 of the Code of Federal Regulations. One comes to the conclusion that there is a genuine desire on the part of the regulators and the regulated to keep these facts as far from the public understanding as possible. NRC staff has simply "determined" that plant exposures will be ALARA, without providing what we consider a sufficient discussion of assumptions and requirements for compliance. No doubt this avoidance is necessitated by the fact that there are no real and specific requirements for compliance. However, if ALARA is to have any meaning to those most affected by the operation of LACBWR, then a public discussion of ALARA, its assumptions and the requirements for compliance is not only absolutely essential, but merely fair to those who care enough to inquire.

With specific regard to worker exposure, and the industry's ability to monitor such exposures, intervenors submit NUREG-CR-1304[illegible]3 as documentation that present personnel dosimetry processors are not performing with an acceptable degree of consistency and accuracy. Thus it is indeed probable that off-gas levels at LACBWR result in higher doses to plant employees than those allowed by 10 CFR Part 20. Investigators in this study on the performance of personnel dosimetry services found that the TLD's used throughout the industry to had a 77% failure rate in the first round of testing, and a 65% failure rate in the second round. In our estimation assertions that TLD's are sufficiently effective then in establishing worker exposures are completely unfounded.

Additionally, Roger J. Mattson, former Director of NRC Division of Siting, Health & Safeguards testified before the EPA to the fact that "there is no way to accurately determine actual doses to real people. Current monitoring devices and procedures are so approximate that it would be impossible to determine compliance or non-compliance with precisely set radiation release limits".[34] While referring here exposures and the public, he could as easily have been referring to worker exposure, for the conclusions of the above-cited Michigan study on personnel dosimeters states that that the dosimeters are not performing with an acceptable degree of consistency and accuracy.

In an article entitled Nuclear Workers & Ionizing Radiation Dr. Rosalie Bertell points out that so few studies have been undertaken on radiation workers as to make the claim that there is no danger as long as workers are not exposed to radiation levels above NRC limits" completely unfounded.[35]

Other factors which cause us to dispute the contention that worker exposure levels are being adequately monitored, so as to make compliance with 10 CFR Part 20 even possible include:

a) 10 CFR 20.202 p. 190, which states that the licensee is required to have a worker wear his monitoring equipment only in relatively high radiation areas.

b) Film badges and other monitors are basically penetrated only by gamma radiation, and therfore are not measuring beta or alpha radiation.

c) Radiation which does not actually hit the film badge is not registered - e.g. radiation which penetrates one's back. As for LACBWR specifically, there is no standard location for

wearing of the dosimeter.

d) Neutron radiation is not being routinely measured.

On the matter of neutron exposure at commercial power reactors, Glen Zimmer, Occupational Health Standards Branch, Director, Office of Standards Development stated that workers are receiving neutron exposures heretofore unknown.[36] In another memo on the same subject Zimmer states that "worker exposures are larger than those that are currently being calculated due to inadequacies on neutron measurement techniques, and insufficient knowledge of the field.. Neutron exposure can not be measured by NTA film, and may well be significant to the total exposure of workers."[37]

A further reference on the issue of inadequate employee monitoring techniques is a memo from E. G. Case, Director of Office of Nuclear Reactor Regulation. This memo presents findings of a study on the effectiveness of neutron dosimeters which concluded that since NTA film is not sensitive to neutrons below about .7 MEV, dose equivalents can thus be grossly undersensitive.[38]

A final study relevant to the issue of worker exposures shows a rapid and inevitable rate at which exposures increase as plants age. This article from Nuclear Engineering presents evidence that would seem to contradict staff assertions that applicant's commitment to design features and operating practices can and will ensure that occupational radiation doses can and will be maintained within the limits of 10 CFR Part 20 and that plant doses will be in compliance with ALARA.[39]

Clearly, on the basis of all of the above-mentioned information it is impossible for the staff to state with any acceptable degree of assurance to the public and to the workers themselves that plant employee exposures comply with restrictions set forth in 10 CFR 20. And indeed, the burden of proof is on the staff to prove compliance.

7, 8 & 9. In support of contention 8 we have relied entirely on the Another Mother Fund for Peace study, <u>How Radioactive is Your Milk?</u> We include ... excerpts from the study at this time in the belief that such information may be helpful in addressing questions regarding this contention.[40]

It is intervenor's understanding that formalin is used in DPC's monitoring procedures which have the effect of masking iodine levels and thus invalidating milk samples in which it is used.

Also, while DPC may or may not have committed to a change in its monitoring program, until such time as the new program is in effect, deficiencies of the program as it exists at present must be discussed and analyzed.

Intervenors intend to have Jeffrey Littlejohn, researcher for this study, testify at an evidentiary hearing on this monitoring study.

10. Intervenors do not possess the needed expertise to properly explain the mechanisms for fly ash, radionuclide synergism. However, our radiation expert, Dr. Sternglass believes very strongly that adequate evidence exists to support this contention. Dr. Sternglass will address this issue at such time as he is allowed to do so.

11. Intervenors submit the following citations which, if

investigated, will provide staff and applicant with further information from some of the individuals who have investigated this potentiality. 41-43.

12. Answered in first response.

13. Same

14. See above-cited studies.

15. Copy of Most article was provided at June prehearing conference

16. Intervenors maintain that costly retrofits at LACBWR will be necessary based on NUREG-0578. Since intervenors last filing it has become more apparent that DPC may have some difficulty complying with many of the Category B requirements. DPC has expressed difficulty in complying with 2.1.3.b(1), 2.1.4.b, 2.1.5.A, 2.1.8.A(a) and (3) of these requirements. If Dairyland is not able to avoid compliance with all of these recommendations, then certain very costly(in both human and economic terms) retrofits will be necessary.[44]

LACBWR's Pland Superintendent Dick Shimshack was quoted in the La Crosse Tribune as saying that these retrofits could price LACBWR out of business.[45] DPC has since said they plan to close LACBWR by 1990 in a possible attempt to avoid TMI-2 retrofit costs. Intervenors attempted to obtain first hand knowledge of this by attending a meeting in Washington, D.C. last January. However, DPC cancelled said meeting. Intervenors were not notified of subsequent meetings.

Intervenors have also contended since the August 1978 prehearing that the SEP program would cause costly retrofits to be required at LACBWR. Since that time an Order to Show Cause has been issued as a result of the determination by the Office of NRR that LACBWR's continued operation was dangerous due to a potential for liquefaction.[46] At the time of this writing it is intervenor's belief that a dewatering system is planned as a solution to the liquefaction problem.

However, the SEP is by no means completed. CREC contends that other categories covered will ultimately require the need for more retrofits. Another issue that is at the recommendation stage is that of fire safety. It appears certain that LACBWR must undergo more substantial retrofits in relation to the fire safety issue.[47]

Finally intervenors believe that no issue of fact exists relative to costly LACBWR retrofits. LACBWR has experienced numerous retrofits in the past, is under to do more at present, and in all likelihood will be required to do more major retrofits in the future. As in the past they will be costly in the areas of both economics and worker exposures.

17. See documents cited in answer to question 16.

18. CREC's position is that two major reasons for anticipating future extended downtime exist:

a) Previous operating history demonstrated that this plant is very susceptible to major problems that have required major and lengthy maintenance. LACBWR will more than likely experience even more lengthy downtime in the future due to the plant's age and poor parts availability.

b) an increase in retrofit downtime as the NRC's tradition of industry accomodation gives way to a more stringent regulation policy. One example of this regulatory trend that may soon be upon us is expressed in the TMI-2 Lessons Learned Task Force Final Report.

> Under this example, a proposed backfit would not need to provide substantial additional protection (as currently inferred); anything required for safety would be sufficient. Similarly, a decision to backfit would naturally precipitate the need to backfit all nuclear power plants, since it was required for safety, without agonizing over value impact studies or case-by-case determinations.[49]

19. Explained in previous question.

20. CREC felt strongly that the $300,000 to $1,000,000 fuel pool reracking retrofit should not have been undertaken without the benefit of a FTOL and an evidentiary hearing on the cost/benefit. Although the ASLB did order a cost/benefit hearing last fall the scope was limited by the time frame that was considered. In essence, the ratepayers of DPC's service area were forced to accept another huge retrofit expense merely on the grounds that operating LACBWR was more beneficial than a two year cold shutdown.

The question is now moot

21. Intervenors still maintain that NRC staff is in error in the FES assumptions. Uranium is probably the most critically scarce fuel resource when compared with the cost of other fuels. As uranium becomes more scarce the price will rise accordingly, a fact that NRC staff has obviously chosen to ignore. In fact, prices quintupled from 1973 - 1978 according to the Ryan Report on Nuclear Power Costs.[50]

That same report cited studies that proved conservation and solar energy much more cost effective than nuclear energy. One study by Suffolk County, NY found that solar energy and conservation would produce three times more energy than nuclear per dollar spent.[51]

The staff's FES did not address conservation or solar energy as alternatives to LACBWR. Both alternatives will consume no fuel and require little maintenance once implemented, and thus are not nearly as affected by economic conditions. Consideration of these two alternatives to LACBWR would radically affect any honest cost/benefit analysis of LACBWR.

In conclusion, intervenors feel that fuel and maintenance costs

should be listed on a yearly basis to support staff's fuel cost assumptions. It is unclear to CREC whether or not the NRC is still using a spent fuel credit in their fuel cost formula.[52] CREC feels that these statistics would factually demonstrate the errors in staff's fuel and O & M assumptions in Table 8-1 of the FES. LACBWR's unique fuel and plant design indicate higher than average fuel and maintenance costs. For example, LACBWR's fuel requires a higher enrichment.

22. As indicated in CREC's first submittal intervenors had no particular method of decommissioning in mind with reference to Contention 19. We believe that there is a lack of relevant information and experience with which to predict costs of any method of decommissioning.

However, there are certain facts that CREC believes must be taken into account that may have a negative effect on LACBWR's cost/benefit balance.

a) Dismantlement within 7 years of shutdown may be preferable from a purely economic standpoint.

b) Storage or entombment may become a more preferable option as decommissioning costs rise, and from a radiation exposure standpoint.

c) The longer LACBWR operates the greater the exposures to employees involved in any phase or method of decommissioning.

d) 2/3 of the core will be lost no matter when DPC closes LACBWR.

Assuming that LACBWR would operate in the black for the remainder of its lifetime (which is very unlikely, especially with of cost of 40 mils/kw for 1979),[54] and funds were paid into a decommissioning escrow fund, then the longer LACBWR operated the less the negative economic impacts would be. However, the environmental impacts of decommissioning would then be greater because of increased radiation levels due to factors such as crud buildup, further equipment contamination, and operator accidents.

23. Intervenor's contend that DPC could save the equivalent energy generated by LACBWR byengaging in a rigorous program of energy conservation and alternative decentralized renewable sources of energy. We base our allegation that the need for LACBWR can be eliminated on the following bases:

a) Real electrical demand is and will grow ever smaller than DPC's current projections.

While the entire issue of future electrical demand is a very complex matter insofar as projections are concerned, CREC has ample evidence to show that DPC's calculations in this area are greatly exaggerated, and a a consequence the need for LACBWR is nowhere near as great as DPC contends. To date some of the best information available on this topic is found in the 1980 Wisconsin Utilities Advance Plan.[55] According to the ESRG Forecast compiled for the Wisc. Public Service Commission for the years 1978 - 88 summer peak for the Western Utilities, including all of the DPC system, will vary on the high side from 3.5% per year growth rate to 1.1 % on the low side, with with a base rate of 2.4%. Winter peak will vary on the high side from 3.4% per year growth to 1.4% per year on the low side, with the base rate being 2.9%. Insofar as annual energy requirements are concerned, for Western utilities the base rate is 2.0%.

Another important source of information in the area of electrical demand is testimony presented before the Wis. PSC in the same advance plan proceedings by the Wisc. Division of State Energy, Dept. of Administration.[56] In this testimony energy requirements for the agricultural sector of the state is forecasted at a constant demand of .1% thru 1985 and a singular decline thereafter despite the increased level of agricultural output. Specifically, demand is seen as declining larely due to increased efficiency in the use of electricity thre utilization of cost-effective efficiency improvements.

These improvements include the rapid market penetration of milk house hear exchangers and a gradual shift to naturally ventilated barns for animal quartering and milking, more efficient lighting and high efficiency motors, pumps and fans. In general Dept. of State Energy figures show demand rates for West. Wisc during 1978-90 of 2.6 for both summer and winter peaks.

DPC's excessive demand projections are highly dependent on the assumption that new rural residential housing starts will continue at the rates experienced in recent years. However, intervenors believe that rising gas prices and a genuine housing slump, precipitated by the ever more severe economic recession we are experiencing nationwide (see national economic figures and especially new housing starts), will have a significant effect on demand figures, and must necessarily be taken into account if such calculations are to be at all accurate.

DPC's own projections for the years 1983 - 90 place demand figures at 4.6%, recently revised down from a rate of 5.7% of 2 years ago.[57] The years 1983-1990 are used here because DPC will have an energy surplus through 1982 due to the coming on line of the John P. Madgett facility.[58]

That this projection is clearly excessive can be realized for the reason that wind generation was not figured in at all, although interest in wind in this region is <u>very</u> high and wind generators are being installed despite tactics employed by DPC to discourage such a practice. Additionally, while wood-burning was factored in to some small and traditional extent, DPC recently admitted that "it was not factored in to the extent that it is occurring now".[59]

Moreover, for the year 1979 DPC experienced an actual reduction in demand on a system-wide basis![60] While DPC has attributed this decrease in demand to an abnormally mild winter, it reflects <u>very poorly</u> on their current demand projections.

As a final note, DPC is notorious for releasing different demand figures to different agencies and individuals at different times. For example, when attempting to sell the need for a new generating plant at Alma some two months ago, in an ad which is enclosed, DPC predicts an annual growth rate of 5.8% for the next 15 years. This clearly contradicts figures DPC has used in other instances.

b) DPC's program for conservation is singularly insufficient and unsupported, and will remain ineffective until DPC makes a genuine and extensive commitment, both monetarily and psychologically to such a program.

When DPC addressed the issue of conservation, its primary substantive examples of commitment include the load management program and home energy audits. Yet according to a Wisc. Rural Electric Coop Association weatherization survey of Wisc. coops for the year 1979[61], of which DPC coops comprise the vast majority, an average of only 11

home audits were made by staff members per system. Also, only 34.6% either sold or installed weatherization materials. During 1979 an average of only 41 members per system utilized the weatherization/service programs, and projections for 1980 average on 100 per system. Regarding the matter of weatherization loans, only 45.2% of the systems even offered such a program in 1979, with an average of 1.1 loans made to members per system. And, it has been stated that the same systems expect to make an average of 2.8 loans in 1980. The average amount of loans per system in 1979 was $770.00.

Clearly, it can be stated that there has not been even a minimal or passing commitment to a weatherization program in the DPC system in 1979. The depth of commitment is brought out all too clearly in DPC's 1980 General Manager's report, where mere lip service is paid to the concept. Conservation is explained as primarily a concern for a reduction in foreign oil use, and its significance to DPC is disclaimed because DPC uses very little oil to generate electricity.[62]

DPC often points to the purchase of a truckload of water heater insulators as evidence of their commitment to conservation, yet in reality there have been very few installed. According to Larry Thorson of DPC, "sales of these insulators have been very slow and the people just don't seem to be tuned in, despite the fact that use has been encouraged in bill stuffers, etc."[63] Obviously, this fact would indicate to anyone that there is a great need for a more aggressive conservation program commitment if it is to be effective.

So far as the option of time-of-use rates are concerned, DPC has already determined that they are impractical and ineffective as a method of conservation and have acted accordingly.[64] Few are in use even when installed. As supporting documentation for this contention regarding the inadequacy of DPC's conservation program, CREC submits testimony of Randy Freeman, member of DPC, before the House Agriculture Committee's Subcommittee on Conservation and Credit.[65] As an expert witness Mr. Freeman will testify on his statement and those of David L. Ostendorf[66] and David Raphael[67], both of Rural America. We also enclose copies of this testimony.

In direct contravention of testimony presented by Mr. Feld in Staff's Motion for Summary Disposition, intervenors insist that while DPC has a flat rate structure for wholesale energy sales, their member coops do not.[68] Intervenors contend that the member rate structure is a major determinant in electrical demand. And, we believe DPC has both the right and responsibility to ensure that the distribution coops maintain a flat rate structure for their customers.

Moreover, intervenors contend that the existence of service charges preclude flat rate structures. Cost of service principles are not conservation principles, and as such are a disincentive. While such charges may be common throughout the industry, the service charges of DPC's member coops are higher than standard practice. TVA's for example is $2.00 per month.

25. Intervenors will use both testimony already referred to and Randy Freeman as a witness to make projections as to the amount that can be saved by alternatives not considered reasonable by both DPC and the NRC staff in their projections.

26. Intervenors submit that DPC plans for meeting future energy demand are grossly inadequate and do, if fact, promote electrical use. Dairyland is promoting the use of electricity by entry over the next several years into a new market area; home space heating. According to DPC's 1979 load management study the company intends to add 57,000 new residential users to the system by 1990. Most of the usage is targeted for home space heating with electricity in conjunction with the company's load management system.[69]

This entry into a new electrical market represents a policy decision which actively must promote energy space heating with electricity in order to ensure its success. Affidavits can be submitted by members of the Hawkweed Architectural Group, the company coordinating construction of passive solar-heated structures in the new downtown Soldiersa Grove, and by other solar heating experts which can substantiate the contention that insulated passive solar-heated commercial and residential buildings offer the most appropriate application for solar power in the region, and is viewed by these experts as the most cost effective application of direct solar energy in the continental United States.

That Dairyland, necessarily acting through their member coops, would promote intrusion into this marketplace, represents a decision to promote conservation in t aditional "peak"areas of consumption, and to encourage consumption in "load manageable" areas of use, altho the end product is a threefold increase in the total amount of energy consumed in the system by the year 2000. "Utilization of gasseous fuels by direct combustion... will decrease and that the percent of energy utilized in the form of electricity will increase."[70] Also, "We, in the system, are putting much effort into load management... If you are planning to change your heating systems, we would like to discuss 'off peaking' heating - whether it be a stored heat system or dual fuel heating units."[71] These documents are admissable as it is these media that DPC has used to communicate with its membership.

According to DPC General Manager Frank Linder "DPC encourages installation of residential heating systems which us electricity most of the time".[72] Clearly, this is promotion of electrical use by Dairyland. See also "Lines Across the Land" for a discussion of the ramifications of the encouragement of electric heat installations on peak demand.[73]

Intervenors submit the enclosed ad from DPC's 1979 Annual Report and a recent ad relating to power consumption as ample evidence to support our charge of promotion of electricity.

In addition to these promotional ads DPC has utilized a method of reverse psychology to legitimize and encourage continued uncontrolled consumption. DPC has characterized those who promote conservation as the best means for people to reduce their cost of electricity and thus reduce the need for new generating facilities as no-growth fanatics.[74] Not this assessment of conservation is precisely the same as that outlined by the REA in a letter to all electric borrowers recently.[75]

One of the most notable observations that can be made about DPC is that their management is deeply entrenched in the past, and as such inhibits the development of alternative energy generation system-wide, which if allowed to flourish would reduce electrical demand sufficiently to call into question the need for LACBWR. While the REA is insisting that all forms of alternative energy sources be encouraged,[76] DPC has done its best to make such use of alternatives difficult, if not impossible,[77-78] to the point where some families have given up on the

idea completely.

Intervenors intend to have Russel Bentley of Windfree, a Wisc. wind energy contractor testify to his experiences with DPC's attempts to inhibit wind generation growth.

As can be seen by DPC's General Manager's discussion of alternatives at the 1980 Annual meeting, DPC's commitment is only as deep as investigating, studying, monitoring and more studying, with no commitment at all of resources.[79]

At present, as a result of DPC's exclusionary contract consumers putting in a wind machine cannot sell their excess electricity to their coop. They must instead engage in a three party contract to sell the excess electricity to Dairyland at a less than wholesale rate, altho it enters only their coop's lines. Coop metering charges have discouraged consumers from making this arrangement also.

The advent of PURPA may change all this by forcing consumer coops to purchase potential power from member consumers. Instead of DPC administrative interferernce consumers may benefit from low interest REA loans and higher payback potential. PURPA's effect would no doubt be a reduced load on the Dairyland system. But for now this stifling "all requirements contract" is in effect and is a disincentive to the development of alternative energies. DPC has the authority to modify this contract but will not do so.[80]

Perhaps the best example of DPC's entrenchment in the past took place during the 1980 DPC Annual Meeting. A resolution presented by Randy Freeman which requested that DPC "study" alternatives to ever-increasing investments in new generating facilities was met by the DPC board members with much hostility and indefinitely tabled. We enclose copies of this resolution and Letters to the Editor from two coop members who are very unhappy with the conservative and even reactionary attitudes on the part of DPC management. It must be clear by now that DPC is having difficulty entering the decade of the '80's.

Intervenors believe the following quotation from the 1980 General Manager's address, a copy of which is enclosed for your information and enjoyment, is characteristic of the threats of Armageddon commonly employed by DPC management to discourage the development of alternatives. "Relying on technologies not yet adequately developed could lead to power shortages, rising unemployment and a dangerous downward economic spiral"[81] We are not now asking that DPC become so dramatically reliant on alternative. Rather, we request only that a genuine commitment be made to the development of alternatives, with the knowledge that there is no utility system better-suited to the development of alternative methods of energy production, be they hydro, solar, wind, biomass, wood heat or conservation.

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the matter of)
Dairyland Power Cooperative) Docket No. 50-409
(LaCrosse Boiling Water Reactor)

RELATED CORRESPONDENCE

AFFIDAVITS OF ANNE K. MORSE AND GEORGE NYGAARD

I have read the foregoing testimony and swear that it is true and accurate to the best of my knowledge and belief, and would be willing to testify to the information.

Anne K. Morse
Anne K. Morse

George R. Nygaard
George R. Nygaard

Subscribed and sworn to before me this ___ day of July, 1980.

Notary Public

My Commission Expires: [redacted]

[redacted]

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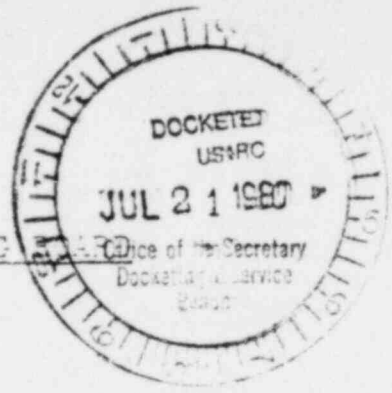
RELATED CORRESPONDENCE



UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 50-409
DAIRYLAND POWER COOPERATIVE	)	
	)	(FTOL Proceeding)
(La Crosse Boiling Water Reactor)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "INTERVENORS' SUPPLEMENTAL RESPONSE TO STAFF INTERROGATORIES" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk, handed over to be teletyped, this 17th day of July, 1980.

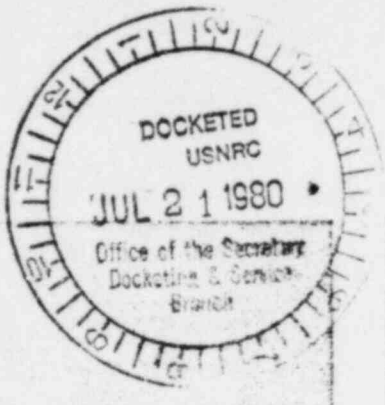
Docketing and Service Section
Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

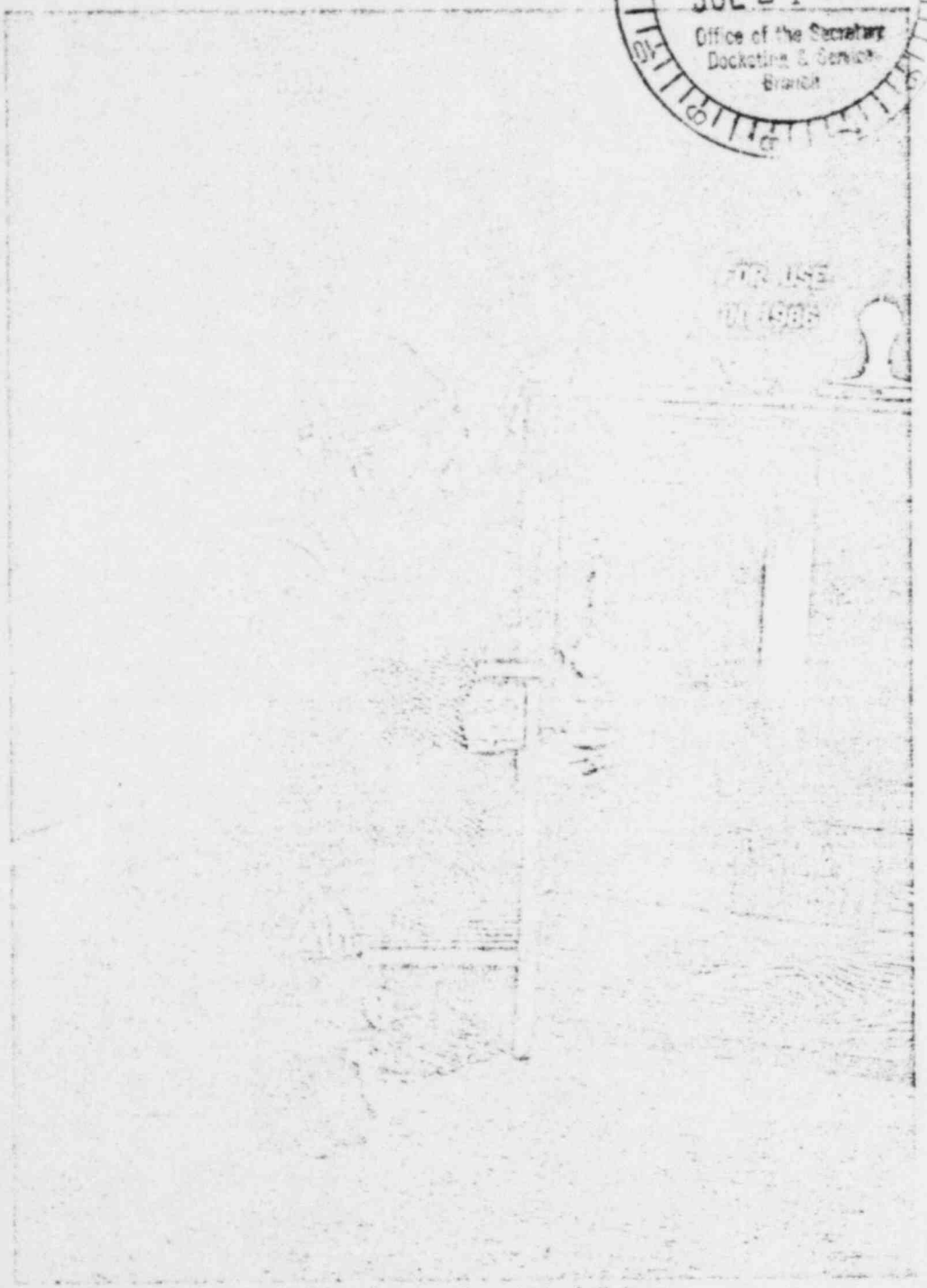
Colleen Woodhead, Esq.
Office of Executive Legal Director
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

D.F. Hiestand, Esq. *
Kevin Gallen, Esq.
Morgan, Lewis & Bockius
1800 M Street, N.W.
Washington, D.C. 20036

RELATED CORRESPONDENCE

Dairyland Power Cooperative





Remember the "good old days?" Take a few seconds to think of all the conveniences in your home that use electricity . . . now take a few more seconds to think of the adjustments you would have to make without the conveniences of electricity. The electric power industry is currently a beleaguered industry and utilities are having a difficult time meeting the electrical demands of consumers.

WISCONSIN

Barron Electric Cooperative
Barron
Bayfield Electric Cooperative, Inc.
Iron River
Buffalo Electric Cooperative
Alma
Chippewa Valley Electric Cooperative
Cornell
Clark Electric Cooperative
Greenwood
Crawford Electric Cooperative
Gays Mills
Dunn County Electric Cooperative
Menomonie
Eau Claire Electric Cooperative
Fall Creek
Grant Electric Cooperative
Lancaster
Jackson Electric Cooperative
Black River Falls
Jump River Electric Cooperative, Inc.
Ladysmith
Lafayette Electric Cooperative
Darlington
Oakdale Electric Cooperative
Oakdale
Pierce-Pepin Electric Cooperative
Ellsworth
Polk-Burnett Electric Cooperative
Centuria
Price Electric Cooperative, Inc.
Phillips
Richland Electric Cooperative
Richland Center
St. Croix County Electric Cooperative
Baldwin
Taylor County Electric Cooperative
Medford
Trempealeau Electric Cooperative
Arcadia
Vernon Electric Cooperative
Westby

IOWA

Allamakee-Clayton Electric Cooperative, Inc.
Postville
Cedar Valley Electric Cooperative
St. Ansgar
Hawkeye Tri-County Electric Cooperative
Cresco
Winnebago Rural Electric Cooperative Association
Thompson

MINNESOTA

Freeborn-Mower Electric Cooperative
Albert Lea
People's Cooperative Power Association
Rochester
Tri-County Electric Cooperative
Rushford

ILLINOIS

Jo-Carroll Electric Cooperative, Inc.
Elizabeth

AFFILIATED MEMBER COOPERATIVES

Adams-Marquette Electric Cooperative
Friendship, Wisconsin
Central Wisconsin Electrical Cooperative
Iola, Wisconsin
Columbus Rural Electric Cooperative, Inc.
Columbus, Wisconsin
Oconto Electric Cooperative
Oconto Falls, Wisconsin
Rock County Electric Cooperative Association
Janesville, Wisconsin
Waushara Electric Cooperative
Wautoma, Wisconsin

Admin. & General Expense	Depr. & Amort. Expense	Tax Expense	Utility Operating Margin	Non-Operating Margin	Interest on Long Term Debt	Other Deductions	Gen. & Trans. Capital Credits	Net Margin & Pat. Capital
329.396	280.789	207.577	462.785	104.367	267.625	2.040	217.317	514.804
214.091	194.078	75.628	142.225	25.938	127.406	4.578	59.592	95.772
182.575	95.700	88.550	264.723	45.300	76.250	9	82.375	316.139
175.250	74.410	82.207	157.352	19.266	71.864	1.342	89.565	192.977
218.595	165.642	146.970	224.130	65.900	40.208	1.074	146.911	395.659
96.942	39.278	51.792	71.589	21.999	29.968	4.244	50.660	110.016
199.243	126.093	106.823	390.866	46.091	6.075	438	122.338	552.782
190.137	149.452	109.591	292.489	69.148	154.860	733	127.674	333.718
191.764	145.960	137.529	196.250	45.968	98.977	991	159.228	301.508
188.185	116.737	85.705	186.069	36.537	67.236	312	73.230	228.288
290.345	131.694	93.177	248.456	31.969	126.483	39.666	67.632	181.908
157.011	100.144	78.337	134.116	18.476	97.457	14.839	69.022	109.318
442.322	242.280	181.679	371.649	70.233	144.016	66.907	157.607	388.566
460.336	133.110	126.106	250.087	36.520	104.528	319	136.419	318.179
341.953	270.763	155.804	390.829	80.196	215.864	552	138.222	392.831
184.485	164.612	62.343	131.153	16.262	107.135	—	52.749	93.029
141.541	71.796	54.415	123.739	22.170	46.046	60	52.866	152.669
176.668	141.012	101.921	212.548	36.783	110.415	8.298	107.300	237.918
124.684	71.126	56.646	180.365	38.235	84.965	—	54.545	188.740
225.286	167.922	156.028	456.344	43.793	151.637	5.356	160.428	503.572
268.372	210.936	169.924	527.759	66.110	150.863	3.298	168.855	608.563
4.599.040	3.093.554	2.331.751	5.416.054	941.321	2.279.897	155.056	2.291.335	6.216.956
129.650	116.568	24.551	333.237	19.164	49.954	10.596	70.274	362.125
318.949	259.010	54.216	662.489	64.531	268.406	6.005	167.282	619.891
401.791	371.264	134.997	543.564	84.203	307.276	1.728	209.682	528.445
442.654	240.810	112.036	841.226	91.978	119.178	1.242	292.721	1.105.505
1.163.394	871.084	301.251	2.047.279	240.712	694.860	8.975	669.685	2.253.841
320.559	246.299	93.198	372.724	68.626	91.195	1.559	153.883	502.479
250.063	95.667	39.232	320.394	22.941	65.434	10.476	107.969	375.394
270.655	151.543	62.606	81.620	76.980	5	1.511	152.347	309.431
128.883	66.518	25.073	8.435	69.446	5.431	379	123.646	195.717
970.160	590.027	220.109	783.173	237.993	162.065	13.925	537.845	1.383.021
6.862.244	4.671.233	2.877.662	8.579.743	1.439.190	3.186.777	188.552	3.572.339	10.215.943
4.471.480	7.691.450	3.937.478	11.375.818	156.648	4.713.704	3.388.063	—	3.430.699
11.333.724	12.362.683	6.815.140	19.955.561	1.595.838	7.900.481	3.576.615	3.572.339	13.646.642
—	—	—	—	—	—	—	(3.572.339)	(3.572.339)
11.333.724	12.362.683	6.815.140	19.955.561	1.595.838	7.900.481	3.576.615	—	10.074.303

BEFORE THE

PUBLIC SERVICE COMMISSION OF WISCONSIN

DOCKET NO. 05-EP-2

RE: Advance Plans for Construction of Facilities as filed with the Commission for Review and Approval Pursuant to Section 196.491, Wis. Stats.

Prepared Direct Testimony of

Gregory C. Krohm

For Presentation

January 2, 1980

JOHN P. MADGETT GENERATING PLANT AT ALMA, WISCONSIN

POWER CONSUMPTION IN YOUR FUTURE:

A Subject We Can't Be Hasty

More efficient farming operations . . . the use of electricity instead of oil-based energy . . . a population movement to the countryside. These are the more prominent factors accounting for an unquestionable, increasing need for electric power in the rural Upper Midwest.

An annual growth rate of 5.8 percent — sparked by an expected 80,000 new consumers — is predicted over the next 15 years in the four-state Dairyland Power System service area. This anticipated increase in electrical consumption will far exceed power requirement reductions gained from ambitious conservation measures — such as home energy audit and load management programs — as well as a possible emergence of wind and solar technologies as viable alternate energy sources.

That's why site studies for another coal-fired power plant, scheduled for service in 1987, were underway long before Dairyland Power's newest generating unit, the John P. Madgett station, was completed late last year at Alma, Wisconsin. Still another facility is being planned for the early 1990's.

And then, of course, there's no choice but to replace worn out power plants, if future electrical requirements are to be fulfilled.

Planning for an ample supply of electricity is a serious business. And we're giving it all our energy.

PIERCE - PEPIN ELECTRIC
COOPERATIVE — ELLSWORTH, WISCONSIN

DAIRYLAND POWER
COOPERATIVE — LA CROSSE, WISCONSIN

Use electricity wisely . . .
the energy you save may be your own.

Dairyland Power Cooperative

1980 Annual Meeting Resolution On

Alternatives to Project '87

Resolved:

That Dairyland Power Cooperative not commit itself to the construction of another large, costly coal plant until less expensive ways of meeting future demand are thoroughly studied. That study should examine at least these possibilities:

1. A greatly intensified conservation effort with these features:
   -Specific goals for weatherization and conservation
   -Low-interest loans to members for weatherization and conservation
   -Insulation of all hot water heaters in the DPC system
   -Creation of a high insulation standard for new buildings
   -Creation of an efficiency and heat storage standard for electric heating systems
   -Use of rate incentives to encourage compliance with established standards and participation in conservation efforts.

2. Giving special attention to the space and water heating load anticipated in the 1980's, providing these principles:
   -Conservation is by far the least expensive means of meeting the demand for thermal energy
   -Renewable energy systems (wind and direct solar) are economically competitive at the margin with electricity for providing thermal energy
   -Incorporation of heat storage devices in the DPC system will increase the value of interconnected solar/wind applications
   -Thermal energy can and should be delivered to consumers on an off-peak basis.

3. Broadening the scope of the proposed load management system to include all existing and anticipated controllable loads, with emphasis on heat storage.

4. Promoting energy-efficient housing for the 1980's through these demonstration programs:
   -Design, construction and sale of several different low-cost passive solar homes
   -Design, construction and sale of several different low-cost earth-sheltered homes
   -Design, construction and sale of several different low-cost super-insulated homes.

5. Creating a voluntary time-of-day rate for all members and providing advice to participating members on how to save money by timing certain uses with it.

6. In addition to the housing program above, encouraging the use of renewable resources by members in the 1980's in these ways:
-Establishing specific goals for each co-op for the addition of new member-owned alternative energy devices
-Promoting wind energy and solar hot water heating
-Providing low-interest loans to members for the purchase of Wisconsin-approved solar and wind equipment.

7. Participating with the state energy office and USDA in an agricultural conservation study designed to reduce farmers' dependence on expensive purchased energy.

8. Integrating large wind machines into the DPC grid for providing thermal energy for direct use and storage.

9. Participating with DOE, the Community Services Administration and the State Energy Office in an aggressive program to refit existing small hydro sites with generating equipment.

10. If it proves necessary to add coal-fired capacity to the Dairyland system in the coming years, the co-op should research the possibility of small, fluidized bed plants in locations where the waste heat can be utilized. Possible uses are:
-grain drying
-animal production
-district heating
-industrial process heat.

For more information contact Randy Freeman, Pierce-Pepin Electric Co-op member, Rural Route 1, Box 232, Hager City, WI 54014, (715) 792-2995.