

LRB-1305

2001 DRAFTING REQUEST

Bill

Received: 12/01/2000

Wanted: As time permits

For: Rob Kreibich (608) 266-0660

This file may be shown to any legislator: NO

May Contact:

Subject: Public Util. - electric

Received By: kunkemd

Identical to LRB:

By/Representing: Felicia

Drafter: kunkemd

Alt. Drafters:

Extra Copies:

copy for
LRB
- 1695
file

Pre Topic:

No specific pre topic given

Topic:

Stray voltage farmers assistance program

Instructions:

See Attached

This Draft
Also became
A Part
of
LRB 01-1695

Drafting History:

<u>Vers.</u>	<u>Drafted</u>	<u>Reviewed</u>	<u>Typed</u>	<u>Proofed</u>	<u>Submitted</u>	<u>Jacketed</u>	<u>Required</u>
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Bill Request Form

Legislative Reference Bureau

100 N. Hamilton Street
Legal Section 266-3561

Use of this form is optional. It is often better to talk directly with the LRB attorney who will draft the bill.
Use this form only for bill draft requests. Attach more pages if necessary.

Date December 1, 2000

Legislator, agency, or other person requesting this draft _____

Person submitting request (name and phone number) Felicia Tubronic 266-0660

Persons to contact for questions about this draft (names and phone numbers) _____

Bob Fassbender, 258-9506, John Stolzenberg

Describe the problem, including any helpful examples. How do you want to solve the problem? 266-2988

see Attachment

→ working with
Xcel

Rebecca Larson, Xcel

280-7314

Please attach a copy of any correspondence or other material that may help us. If you know of any statute sections that might be affected, list them or provide a marked-up copy.

You may attach a marked-up copy of any LRB draft or provide its number (e.g., 1999 LRB-2345/1 or 1997 AB-67).

Requests are confidential unless stated otherwise. May we tell others that we are working on this for you? YES NO

If yes: Anyone who asks? YES NO
 Any legislator? YES NO

Only the following persons _____

Do you consider this request urgent? YES NO If yes, please indicate why Caernes

Agreed to include in ~~the~~ budget if processed in a
timely manner.

Should we give this request priority over any pending request of this legislator, agency, or person?

YES NO

Confidential – Not for Distribution

STRAY VOLTAGE – FARMERS ASSISTANCE PROGRAM

(November 22, 2000)

Issues: Most farms in Wisconsin are in need of significant wiring improvements for safety, stray voltage mitigation, and energy efficiency. This situation is compounded by the fact many farmers lack the specific knowledge and financial resource to address their wiring problems.

Stray voltage issues are addressed through PSC rules that set “levels of concern” that reflect the amount of voltage that when exceeded triggers a utility’s obligation to take mitigation steps. These levels of concern are set using the best scientific data available with ample opportunity for public review and comment. Yet, despite PSC and utility industry efforts to address this issue through a rationale, science-based approach, stray voltage disputes often end up in courts, before juries that are ill-equipped to evaluate the complexities of the issue.

Potential Solution:

Rewiring. Establish a program to promote and assist farmers in addressing on-farm electrical safety and code concerns, identifying and installing key energy efficient technologies, and to evaluate stray voltage levels and sources.

- **Funding Source** – Use existing funding sources within DOA’s administered public benefits program. # 3-6 million

- **Eligibility**

- **Eligible Recipients** – The utility customer would need to be an operator of an existing dairy, beef or swine farm looking for assistance to replace existing wiring and install energy efficient equipment.
- **Eligible Projects & Procedures** – PSC would develop rules that set forth eligible project criteria and related procedures. grants & low interest loans
- **State Electrical Inspectors** – Increase state funding to add additional state electrical inspector positions. - How much money for how many positions?

PSC Standards. Establish liability immunity for public utilities that meet stray voltage levels of concern standards establish by PSC in any order or rule. There would be an exception to this immunity if the public utility acted maliciously toward the plaintiff or in an intentional disregard of the rights of the plaintiff. Any evidence on stray voltage levels is inadmissible if such levels were not calculated in substantial accordance with PSC procedures. Upon request of any party, PSC must evaluate and offer a controlling opinion on whether PSC procedures were substantially followed in calculating stray voltage levels. In addition, the legislation will clarify that Wis. Stat. §196.64 does not apply to a stray voltage claims.

PSC has set std by rule:

- .5 volts $\frac{1}{2}$ under

C + proceeding

- Timing?
- Limits?
- How much each yr?
- Granted
- sum of effort NOT exceeding

Bob will enter 6/12/18

6.0 new electrical inspectors in OATCP 895

11TH OPINION of Level 1 printed in FULL format.

Investigation on the Commission's Own Motion Into the
Practices, Policies and Procedures Concerning Stray Voltage
for Electric Distribution Utilities in Wisconsin

05-EI-106

PUBLIC SERVICE COMMISSION OF WISCONSIN

1989 Wisc. PUC LEXIS 48

August 10, 1989

CORE TERMS: voltage, stray, isolation, farmer, cow, farm, electric, customer, off-farm, measurement, resistance, guidelines, isolator, load, electrical, secondary, animal, livestock, rural, earth, electrician, grounding, floor, plane, testing, corrected, concrete, on-farm, three-phase, mitigation

PANEL: [*1]

THE COMMISSION

OPINION: FINDINGS OF FACT, CONCLUSION OF LAW AND AMENDED ORDER

Proceedings

On August 18, 1987, the Commission commenced this proceeding to gather information about stray voltage by issuing a Notice of Investigation and Technical Conference. A technical conference was held on August 31, 1987, to define the issues and to help establish a hearing schedule. Subsequently, the Commission issued a Notice of Public Hearings on September 29, 1987, announcing public hearings to be held around the state in cooperation with the Department of Agriculture, Trade and Consumer Protection. Public testimony from farmers, electricians, utilities and others was received at these hearings conducted by Commissioner George R. Edgar and held at 1:30 p.m. and 7:30 p.m. at the following towns and dates: Portage on October 13, 1987; Darlington on October 15, 1987; Rice Lake on October 20, 1987; Whitehall on October 21, 1987; Richland Center on October 22, 1987; Kewaunee on October 26, 1987; Ripon on October 27, 1987; Jefferson on October 28, 1987; Belgium on October 29, 1987; Merrill on November 2, 1987; Marshfield on November 3, 1987; Burlington on November 9, 1987; Waupaca on November 10, [*2] 1987 and Oconto on November 11, 1987. A questionnaire from the Commission to the major investor-owned utilities, the Wisconsin Electric Cooperative Association and the Municipal Electric Utilities of Wisconsin, was sent on November 18, 1987, to request information on stray voltage practices and policies.

On February 26, 1988, a Notice of Prehearing Conference was issued. A prehearing conference was held on March 7, 1988, in Madison to discuss the format for upcoming technical hearings concerning stray voltage. A Notice of Further Hearing was mailed on March 22, 1988. Hearings were held from April 12-15, 1988, before Commissioner George R. Edgar. Expert testimony was presented by the utilities, a series of witnesses on behalf of the Stray

Voltage Task Force and the Stray Voltage Assessment Team.

The Commission initially discussed this docket at its open meeting of August 9, 1988. Subsequently, a Notice to Solicit Additional Comments on neutral isolator policy was issued on August 19, 1988. The Commission reviewed and discussed these additional comments at its open meeting of October 18, 1988.

A notice of appeal rights appears in the attached Appendix A. The parties, for purposes [*3] of review under sec. 227.53, Stats., are listed in Appendix B. Other persons who appeared are listed in the Commission files.

Findings of Fact

THE COMMISSION FINDS:

The public and technical testimony in this proceeding has provided a great deal of information concerning stray voltage. The Commission acknowledges the serious impacts that stray voltage problems have had and can have on farmers. While various opinions have been given about the extent to which stray voltage is a problem in Wisconsin, there is little dispute about the consequences to a farmer who does have stray voltage. We will continue to seek information on the extent of the problem, but like other parties we do not need a precise answer to know that we should be involved in solving a problem which does affect Wisconsin livestock operators.

There is a history to stray voltage in Wisconsin which the parties in this proceeding have put aside to focus on what should be done now and in the future to deal with the problem. It is in that vein of cooperation that the Commission discussed its general policies in this order. We do not mean by listing requirements of what should be done to suggest that some of them [*4] are not being done. Rather, our decision attempts to set forth procedures, guidelines and actions which constitute an effective framework for preventing and resolving stray voltage problems. While we will meet our regulatory responsibilities, our decision is written from the perspective of the cow which is more concerned about not having a problem than arguing about who is responsible for it. We believe that where responsibility is clear that appropriate action should be taken to recognize the losses caused in a timely manner.

"Stray voltage" can cause serious financial and psychological stress for a farmer and his or her family, as well as behavioral stress for livestock in confined facilities. Fortunately, stray voltage is a solvable problem in the vast majority of cases. But, all the parties involved, farmers, utilities, electricians, farm equipment producers and installers, government agencies, veterinarians and the financial community, must understand the problem and cooperate to resolve it. To date, some farmers, electricians and the utilities have attempted to respond to stray voltage concerns. The Commission in this decision sets forth its policies and responses to [*5] this problem.

There are several basic principles upon which this Commission decision is premised. First, it is better to prevent a problem than to solve it after it has happened. Good fundamental planning, operation and maintenance on both sides of the meter; i.e., on the utility's and the farmer's electric systems, are necessary to minimize stray voltage problems. Second, it is better to

remove the source of the problem than to only mitigate it. While mitigation may be necessary for some period of time to allow the problem source to be removed, the goal should be to find and correct causes. Third, each situation must be approached and analyzed based on its specific facts. While stray voltage problems can be caused by both on and off-farm sources, only a specific analysis for each farm will indicate whether there is a problem and what its source is. Fourth, livestock are adversely affected by many causes which manifest similar symptoms to those caused by stray voltage. While a farmer should certainly check for stray voltage, he or she needs to consider all causes, including electrical and nonelectrical ones, when his or her livestock experience production or [*6] behavioral problems.

"Stray" voltage is a term that has often been used to describe different situations. It is important to have a common understanding when terms are used to distinguish between "stray" voltage and neutral to earth voltage. Neutral to earth voltage is voltage measured from the electrical system neutral and/or any structure bonded to this neutral to earth (e.g., to a driven reference ground). Neutral to earth voltage is always present at some level on a multiple-grounded neutral primary electrical distribution system, and on a farm electrical system, as the result of the electrical current flow in a multiple-grounded electrical system. "Stray" voltage is a special case of voltage in which the neutral to earth voltage is present across points (generally grounded metal objects) in which a current flow is produced when an animal comes into contact with them. As will subsequently be discussed, these contact points can include any two conductive points which the animal may simultaneously contact to complete a circuit which allows current to flow. Stray voltages are low-level voltages and should be distinguished from painful shocks felt by humans.

Based on available [*7] research, there is insufficient evidence to conclude that stray voltage causes a direct physiological impact on animals. However, there is evidence that stray voltage can cause stress and behavioral impacts through stress on animals to the point where the animal is reluctant to eat and drink, thereby causing milk production to decrease as well as creating the circumstances for additional physical and manageability problems. These problems can cause serious economic hardship to a farmer or can indirectly result in an animal's death, and provide the reasons that corrective action should be taken if unacceptable levels of stray voltage exist. Because of evidence from farmers of the possible physiological and reproduction problems caused by stray voltage, the research as to how and what electrical factors affect livestock should be continued and Commission policy will be modified as appropriate based on this new research.

1. Level of Concern

Existing research has led many of the Wisconsin utilities to use .5 volts as the level of concern (i.e. the point at which the average cow's behavior may be adversely affected) in their stray voltage investigations. As previously noted, [*8] "stray" voltage is the voltage difference between points. However, it is actually the current flowing through the animal that affects it and, therefore, the Commission finds that the level of concern should be stated in milliamperes: the measurement unit of current flow. The Commission finds that the existing research which underlies the .5 V standard supports a 1 milliamper steady state standard which will be used by the Commission as the level of concern. However,

the Commission will stay apprised of the on-going research and will raise or lower this standard as appropriate.

2. Desirability of Standardized Screening and Diagnostic Measurements and Equipment

There are several reasons to use standardized measurements, both to screen for the presence of stray voltage and to diagnose the source. First, they will provide a consistent systematic analysis which can readily be documented and duplicated. Second, they can avoid needless controversy over whether an adequate analysis was performed or whether the nature of the tests were valid. Third, they can recognize the various interests of parties working on a stray voltage analysis. For example, standard tests [*9] to determine whether a problem has an on- or off-farm source can be used to reduce the time an electrician must spend on a farm and bill a farmer.

There are many valid tests which produce useful information in a stray voltage inquiry. The standard measurement tests which this decision will establish are designed to recognize those tests which the experts have indicated are the most useful in resolving most stray voltage problems. The testimony and exhibits of Gustafson et al., Surbrook and Bodman all present well-tested and usable test formats from which the Commission has borrowed. These standard measurements, plus the requirement that adequate documentation be maintained by the utilities to fully analyze the result of each test, should provide confidence that if stray voltage was present, it would be detected and its source ascertained.

3. Standardized Screening Tests

a. Use of "Cow Contact" Areas

The most important measurement areas are "cow contact" areas where the animal can simultaneously access two points of different voltage of sufficient magnitude to cause an objectionable current to flow through the animal. These "cow contact" points or areas primarily [*10] include the milking, feed and watering areas. While measurements from the primary or secondary neutral to a reference ground can be valuable to take, the measurements of main interest should be in those areas where the cow can close a circuit to allow current to flow. Care should be taken not to take measurements where the points to be measured are bonded together by some means (e.g. water line to pipeline). In addition, measurements should be taken at various times of the day but particularly during times of high electric load (i.e., milking times) and in different locations.

The measurements taken in the cow contact areas seek to determine the strength of the current accessing the cow. This is dependent on the voltage and resistance and can be calculated by the use of Ohms Law: current equals voltage divided by resistance. For example, .001 amperes (1 milliampere) is produced by a voltage of .5 volts divided by a total resistance of 500 ohms. Since, voltage can be measured, it becomes necessary to determine the total resistance in any cow contact circuit to calculate the strength of the current. But, total resistance is in fact a composite of several distinct resistances: [*11] that of the path through the cow, that between the cow's hooves and the floor and that of the concrete floor itself. Thus, in

making cow contact measurements it is necessary to use a resistance that reasonably approximates the effective resistance of the cow in the circuit.

b. Use of Resistors

Existing research indicates that a reasonable range for the resistance of the mouth to rear hooves path in a cow is from 350 to 560 ohms. Therefore, when taking cow contact measurements, resistors in the 350 to 560 ohm range should be used to simulate the resistance of the path through the cow. While higher voltage and current readings will result where a resistor is not used, the goal is to determine the sustained level of the current actually impacting the cow.

While the use of appropriate sized resistors simulates one part of the total resistance, there are other resistances which must also be addressed. Research has indicated, in order to simulate the contact resistance between the cow's hooves and the floor, that a 4-inch copper plate or some similar object under pressure be used. Simply, touching the probes of a voltmeter to the concrete floor will only by happenstance provide [*12] a useful reading.

The resistance of the concrete floor will also vary due to factors such as the age, thickness or moisture content of the concrete. Research has indicated that this contact resistance can be neutralized by the application of salt water to the 4-inch copper plate when measurements are taken.

c. Tools to Measure

Many stray voltage problems can be detected by a simple voltmeter which can distinguish between ac and dc voltages and which is either digital or has a high impedance. However, because some stray voltage problems may only be evident at certain times of the day or when certain equipment is turned on (i.e., transient voltage), the use of a recording voltmeter may be necessary. The recording voltmeter can chart voltage levels over time (preferably at least over a 24-hour period) without interrupting the dairy operator's schedule. This meter is a valuable tool to screen for stray voltage problems when they are not immediately detected by the use of instantaneous voltage readings.

By describing these basic screening measurement tests, the Commission is not saying that further investigation is not warranted if the basic tests do not indicate a problem. [*13] There is no substitute for good judgment based upon an observation of the actual behavior of the animals and the consideration of other variables, including nonelectrical factors. The Commission expects that additional efforts beyond the basic screening tests will be pursued when those observations justify such further action. We also recognize that the screening procedures used by the utilities now take a wide range of measurements in numerous locations and find these procedures to be appropriate and useful.

4. Standard Diagnostic Measurement Tests

Based on the measurement techniques recommended by the experts in this case, the Commission finds that the following five tests should be basic to any stray voltage investigation seeking to find the source of a stray voltage problem. Because stray voltage is affected by daily seasonal and geologic conditions, these tests may need to be repeated at various times.

a. Primary/Off-farm

There are two tests which may indicate whether a stray voltage problem comes from the primary distribution system or from an off-farm source transmitted over the primary system. The first test requires the power to the entire farm to be disconnected [*14] by opening the main disconnect (e.g., pole top switch). Adding only 240 volt farm loads to the transformer will introduce a current flow on the primary system. This can be done with a load box or on-farm 240 V load. Both neutral to earth and cow contact voltage readings should be monitored. Readings should be taken at various times of the day as loads on the primary system change. If the 240 V loads produce increased neutral and cow contact levels, there may well be an off-farm problem.

The second test, which should be used when all the other tests discussed in this section do not indicate the source of a stray voltage problem, is to open the connection between the primary and secondary neutrals and any other possible bonds such as the telephone or cable television connections. Both neutral to earth and cow contact voltage readings should be monitored. This test could reveal a ground fault or other problems off the farm. Utilities should cooperate with electricians who wish to conduct this test if all other tests have not revealed the source of a stray voltage problem and there are no safety concerns involved due to the secondary wiring and grounding systems, particularly [*15] the absence of grounding on the farm.

b. On-farm Tests

These three tests should be conducted after the first off-farm test using only 240 V loads. The first on-farm test is to measure from the barn panel neutral to a reference ground which is away from any other grounds or metal in direct contact with the earth. Measuring from equipment in the barn to either the secondary neutral bus or a reference rod will indicate whether the equipment is either not bonded or is inadequately grounded.

The second on-farm test is intended to find excessive neutral voltage drop on the neutral conductor to buildings on the property. A known load such as a portable 120 V hair dryer should be used, while measurements are taken between the barn service panel and the secondary neutral of the transformer (pole ground). The simple formula of voltage drop = current x length x resistance of the conductor per 100 feet divided by 100 should be used to indicate abnormal voltage levels on the farm neutral. This test is best taken with all other loads off.

The third on-farm test checks for ground faults on the farm. Testing should be done by turning on all equipment, one piece at a time, that contacts [*16] the earth. A high reading produced on the meter connected between the barn panel and the reference ground will indicate that a ground fault may be a problem.

These five tests should identify the source of most stray voltage problems. Obviously, if they do not, other means such as recording meters to check for voltages, stand-by generation tests or the use of oscilloscopes to check for high frequency problems which might be caused by electric fencers should be performed when appropriate. Any tests performed should be documented as to what

was done and the results attained.

The information gained from stray voltage investigations including the frequency of occurrences, the levels which caused the problem and the sources of the problem should be built into a data base at the Commission. Therefore, the Commission will direct the utilities to supply such information as it deems appropriate and will seek to encourage electricians involved in stray voltage investigations to cooperate in this effort.

5. Prevention

Consistent with the general principle that it is better to try to avoid problems, the Commission will ensure through its regulatory oversight that the utilities plan, [*17] build, operate and maintain their facilities with an aim to minimize the potential for stray voltage problems. In order to achieve this end, the Commission will require the utilities under its jurisdiction to conform to the following guidelines unless they can demonstrate to the Commission that said guidelines should not be applied to them.

While the Commission will not establish a maximum level for primary neutral to earth voltage on a distribution line, it does note that several utilities, such as Northern States Power and Wisconsin Public Service Corporation, have internal guidelines for such levels which are useful, not only for stray voltage purposes, but also for general planning and operational management. The ranges established are from 2.5 to 5 volts on the primary neutral system, depending on the primary phase to phase voltage levels. Other utilities should submit similar guidelines or show why such guidelines are not appropriate for them. A comprehensive review process to ensure adequate planning and operation of rural distribution systems with a view to minimization of stray voltage concerns will be implemented.

The most common rural distribution systems include [*18] three-phase four-wire, two-phase three-wire and one-phase two-wire. Much attention has been focused on three-phase secondary service derived by an open delta transformation from a two-phase three-wire primary system. The open delta transformation has the same imbalance problems that occur on a single-phase system. Several of the experts in this proceeding have recommended, that, when cost-effective, three-phase four-wire systems replace two-phase three-wire systems. This was particularly recommended as three-phase loads increase on a line which serves facilities in which livestock is confined and where no long-term mitigation techniques are in place. The Commission agrees that two-phase three-wire systems should be phased out according to a balance of factors such as service problems, timing of rebuilds, cost and load growth. Particular attention should be given to rural lines where multiple isolations due to stray voltage problems have been necessary or where rebuilds or upgrades are planned or needed. It is also appropriate to recognize that there are some existing two-phase three-wire primary lines which are not a problem and where it could be prohibitively expensive to both [*19] the utility and to farmers to change over to a four-wire system. Therefore, the Commission will have its Engineering and Energy Planning and Programs staff review utilities' submitted policies for the replacement of two-phase three-wire lines by rebuilding or adding the fourth wire. The staff should recommend an appropriate course of action to the Commission if these policies are not adequate. Utilities' policies on this issue should be submitted within 90 days after the issuance of this order.

The Commission is also concerned about whether end-of-the-line customers are more susceptible to stray voltage problems. Testimony in this docket indicates some technical concerns such as the level of primary neutral to earth voltage under certain circumstances. Also, a number of farmers who had problems indicated that they were on the end of the line. However, the Commission believes more information is necessary and will expeditiously attempt to gather information on end of the line customers to determine if there are common factors which will allow a more complete evaluation of this question. A questionnaire seeking information on this topic will be sent to both the utilities and [*20] farmers before March 1, 1989.

The Commission on the basis of the information in this docket finds as a general policy that the utilities should adopt the following techniques to prevent or minimize the possibility of stray voltage problems unless they can demonstrate to the Commission that such actions are not appropriate on their systems.

1. The utilities should utilize guidelines for load balancing to reduce primary neutral current.
2. While nine ground rods per mile are required by code, the use of increased or special grounding such as counterpoise should be done when appropriate. However, it is recognized that additional grounding on a distribution line may have little impact on the level of neutral voltage. Grounds should exceed code requirements and be separated, when possible, by 1-1/2 to 2 times their length.
3. The placement of the customer's central yard pole should be such as to minimize the secondary neutral voltage drop related to the service entrance. This placement should be outside of animal confinement areas. The customer's preference must also be considered in placement.
4. The use of steel conductor on primary distribution lines should be phased out. [*21] The utilities should submit reports to the Commission on the amount of steel conductor it has in service and provide a schedule for its replacement. This requirement extends to distribution static wires.
5. Line reductorings or voltage upgrades may be necessary to prevent or to aid in the correction of a stray voltage problem. Whether this level of modification is warranted should be done on a case-by-case analysis of specific lines.
6. The removal of split-bolt connectors can aid in the mitigation as well as the prevention of a stray voltage problem. Split bolt connectors are susceptible to corrosion and other problems if not properly installed and maintained. Therefore, unless a utility provides adequate proof to the Commission that a quality control program is in place, split-bolts should be phased out by replacing them at the time of investigation or maintenance.
7. Further review is necessary to determine if the new National Electric Code rule modification concerning the common bonding of multiple services to a farmstead will adequately address any potential problems. The utilities with multiple services should provide the Commission with relevant information as

[*22] it is developed.

The Commission is strongly committed to ensuring that adequate practices and policies are in place to ensure that utility rural distribution facilities are not the source of stray voltage problems. The Commission will review the practices and policies of the utilities periodically to determine if adequate efforts are being made. To ensure that the Commission is fully informed of the practices of the utilities in this area, each utility will be required to submit the following: (1) its policy for future increase of primary voltage levels through upgrades or rebuilds, if any; (2) its rural line tree trimming policies; (3) its policy as it pertains to primary underground systems including the grounding procedures for these systems; (4) its policy on visual and/or more extensive inspections of rural distribution systems; (5) its policy on testing neutral isolators to ensure that they are operating effectively; and (6) its policy for periodically checking phase load balance and criteria for rebalancing loads on three-phase lines.

While the Commission's jurisdiction only extends to the utility side, there are also viable and effective means to prevent or mitigate stray [*23] voltage problems on the secondary or farmer's side. For example, the following practices by a farmer would go a long way to ensure that stray voltage does not become a problem for him or her:

1. Four-wire systems are an excellent means to avoid secondary neutral drop problems.
2. Grounds at the transformer pole and at all service entrances should be of a good quality and as close to 25 ohms or less as possible. Grounds on the secondary side should be separated by 1-1/2 to 2 times their length. Equipment must be adequately grounded.
3. Wherever possible, 240 volt motors should be used and when possible and economical, soft-start motors should be used to minimize transient spikes when motors are turned on.
4. Conductors should be adequately sized for the expected load.
5. Connections on the neutral system should be checked on an annual basis or as needed and split bolts replaced.
6. Equipment should be installed in accordance with local and state electrical codes.

Information as well as financial assistance programs to encourage farmers to adopt these practices should be provided by utilities. Good wiring and equipment practices on the secondary side are important and [*24] necessary steps to prevent stray voltage problems.

6. Isolation

Neutral isolation separates the primary and secondary neutrals in order to prevent off-farm sources of stray voltage either originating on the utility line or on a neighboring farm from accessing "cow contact" areas. It should also be recognized that neutral isolation reconfigures the circuit and as a result can

"solve" (i.e., mask) on-farm problems in some situations. The Commission accepts that the multiple grounded system in which primary and secondary neutrals are solidly bonded is the preferred means by which to minimize primary neutral to earth voltages on rural distribution lines for both operational and safety reasons. However, neutral isolation can have a mitigative effect on stray voltage problems. Thus, while the Commission realizes that neutral isolation does not enhance the quality of the electrical system, it also realizes that the neutral isolator can be a valuable tool to combat off-farm sources of stray voltage.

The multiple grounded wye system is a commonly used distribution system which seeks to ensure safety against technical failures and lightning by the bonding of utility and customer [*25] grounds. It is not the intention of the Commission to encourage the use of neutral isolation except as necessary or where a safer solution is not available. Neutral isolation may be utilized as a stray voltage solution to gain time to correct the source of a stray voltage problem or as a longer term solution when the source cannot be found or easily corrected. When the source of the problem is corrected, it is preferable that the isolator be removed.

For purposes of safety and proper operation, it is common practice (and sometimes required by the electrical code) for communications companies (telephone, cable television, etc.) to interconnect or bond the grounded elements of their facilities to specified power system grounds of the electric utility and service entrance grounds of customers. In these situations, a parallel path(s) between the electric utility's primary and secondary systems is provided that can defeat the isolation intended when the primary and secondary electric neutrals are separated for purposes of testing or limiting off-farm sources. It is important, therefore, that such parallel neutral/ground paths be investigated during stray voltage investigations. [*26]

Where it is necessary to also disconnect or interrupt this path for purposes of testing and/or installing or removing isolation, the communications company should be contacted to do any necessary work involving its facilities. Those electric and telephone utilities which have not already done so should develop and implement appropriate agreements, procedures and working arrangements between each other in their respective common service areas to provide necessary advance notice, coordination, and scheduling when mutual involvement and assistance is needed. Customers, electricians and other nonutility parties should also be advised that they should not disconnect, rearrange, work on, or tamper with any utility (electric, telephone, gas, etc.) facilities without proper advance notice, assistance, or consent of the owning company. This instruction is necessary and will be made a part of the order herein so that the serving utilities can ensure that their facilities are not damaged by persons untrained in, and unfamiliar with, the installation and maintenance of utility facilities; that utility service to the farm being tested, as well as to other customers, is not unnecessarily disrupted; [*27] and that, after such testing or isolation, the serving utilities' facilities are restored in accordance with the technical and safety requirements of the serving utilities and the Wisconsin State Electrical Code.

The evidence in this docket indicates that isolation may raise the levels of primary neutral voltage on neighboring farms. However, this evidence also suggests that on a single isolation this effect is localized and can be neutralized by actions such as additional grounding. Therefore, the Commission

should require that where a utility does not do so already, adequate measures be taken to ensure that isolation does not adversely affect neighboring farms. This would mean informing those farms when isolation has in fact resulted in increased primary neutral levels which cannot be reduced by available means. There is a concern that widespread use of isolation on the same line can create problems to a greater degree than a single isolation. Indeed, multiple isolations on the same line may be a good indicator of the need to upgrade or rebuild an existing distribution line. The Commission will seek further information on the effect of multiple isolations on the same line [*28] and take further action as appropriate.

Finally, the Commission is also aware that the its determination that it is desirable to use isolation only when necessary, and as a temporary means to allow the source of the problem to be corrected, may conflict with some farmers' belief that isolators should be a permanent form of insurance. However, the more the use of neutral isolation increases the more likely that the integrity, adequacy, safety and reliability of the distribution system will be compromised. The Commission at this time believes that the solution to this problem is education and financial incentives which favor correction over mitigation, including isolation. This effort to use incentives to motivate behavior is preferable to the development of an absolute policy which denies a customer the ability to seek isolation when he or she deems it appropriate. We agree with those utilities which note that if farmers want to be isolated that there is the possibility that they may take far more dangerous actions on their own to become isolated if an isolator is not an option. However, should the incidence of isolation where there is not an underlying justification for such [*29] action increase to a level of concern, the Commission will be prepared to take actions which ensure the integrity of the existing system. The goal will be to limit the widespread or indiscriminate use of isolation.

Based on the foregoing reasons, the Commission will require that all utilities file neutral isolation policies for Commission approval within 90 days which conform to the following guidelines, if those on file are not appropriate, or show cause why such guidelines should not be applied to them. The guidelines which follow are based on the formats used by Northern States Power Company and Wisconsin Public Service Corporation.

1. Isolators should be installed at no charge to the customer when the appropriate threshold levels are exceeded and the source is the primary neutral or an off-farm problem transported over the primary system.
2. The customer who receives the isolator at no charge should be informed that the isolators are temporary until the off-farm problem is corrected or until the farmer corrects the on-farm problem or installs an on-farm mitigation device.
3. After the off-farm problem is corrected, or where there are no off-farm problems to begin with, [*30] or where the threshold levels are not exceeded, the farmer should bear either an initial charge or a charge should be applied after some reasonable period of time is allowed to take corrective or mitigative action. A trial period at some initial nonrefundable amount, with an additional sum due after some period of time, would be reasonable.
4. Neutral isolation could be prohibited in the following circumstances:

(a) The removal of the farm grounds cause the primary neutral voltage to increase to unacceptable levels.

(b) The installation of the isolator causes the farm electrical system to be unsafe including because of lack of farm grounding.

5. Neutral isolation could be used only as a short-term, temporary measure in the following circumstances:

(a) An alternative mitigation device such as an equipotential plan is a more economical, safe and effective long-term solution.

(b) The off-farm problem is corrected.

We believe these isolation guidelines along with the provision of adequate information and financial assistance on available options will allow farmers to make informed choices and will provide a least cost solution to utilities. We expect these guidelines, as NSP [*31] notes, to encourage customers to compare the costs of the isolators with the costs and benefits of other corrective or mitigative action. Again, the Commission reiterates its intent to implement a policy which over time will encourage the correction of problems as the first course of action. This should lead to the ultimate removal of isolators when they are no longer needed.

The Commission in this investigation also was presented with evidence that there are operational differences between types of neutral isolators now in use. In a response to the Commission questionnaire, Wisconsin Electric Power Company noted that saturable core isolators may not operate effectively in certain circumstances such as where there is inadequate grounding on a farm. Solid state switches do not have these problems. The Commission recognizes that the utilities are now only buying solid state switches. The Commission will require the utilities continuing to use saturable core isolators to ensure that they are installed in proper conditions and operate appropriately. The Commission will seek further information on the relative merits of saturable core versus solid state isolators and take whatever [*32] action may be appropriate as a result of that information.

7. Other Mitigation Techniques

The same principle that causes of stray voltage should be corrected rather than simply mitigated also applies to mitigation techniques other than isolation. Several types of mitigation techniques already available to customers and utilities can provide relief to stray voltage problems. Electronic Grounding Systems are expensive but, if competently installed, can suppress the amount of current accessing animals in the "cow contact" areas.

The most used mitigative technique is the equipotential plane which is required by DILHR Volume 2, State Electrical Code, to be installed in all new livestock facilities in Wisconsin. Equipotential planes are simply a grid of conductors buried in a concrete floor and bonded to the neutral of the electrical system. The goal is to ensure that all of the metal which an animal may come into contact with are at the same voltage potential. While an equipotential plane can be an effective means to mitigate a stray voltage problem, the experts have noted three concerns. First, the areas which are planed must include waterers and feeders as well as the [*33] milking

parlor floor. Second, a transition plane for animals to get on and off the plane may be necessary if the potential between the plane and the surrounding ground is great enough. Third, the effectiveness of equipotential planes may be affected by the electrical properties of the concrete floor.

As noted previously, the resistance of the floor is affected by the age and moisture content of the concrete, the thickness of the concrete and the type and moisture level of the soil in contact with the concrete. While planes can be retrofitted into existing facilities, these concerns are further reasons for all parties to concentrate on removing causes. Notwithstanding, equipotential planes can mitigate stray voltages or serve as additional insurance to ensure against future problems developing.

8. Information and Customer Complaint Procedures

The procedures which are used to explain stray voltage investigations to a customer are as important as the results of those investigations. If customers are to have confidence in the findings, they should have the opportunity, and indeed be encouraged, to participate in the investigation and be informed why things are being [*34] done and what the results of tests mean. The utilities, in their responses to the Commission's questionnaire, appear to recognize the importance of good communications with the customer to both analyze and solve stray voltage concerns. In addition to these actions, the Commission finds that utilities should provide the results of its testing to the farmer, in written form if so requested.

The information submitted in this docket also indicates the importance of short response times to stray voltage complaints. The utilities have made good faith attempts to respond promptly. The Commission encourages the continuation of this attitude as well as one that emphasizes trying creative approaches when normal responses do not seem to have solved a problem.

Utilities should continue to provide information to customers on the symptoms which attach to stray voltage as well as on preventive, diagnostic and mitigative techniques which are available if stray voltage is a concern. Utilities should also continue or establish regular stray voltage related trade ally and farm information programs. In addition, encouraging all dairy customers to install a voltmeter in their facilities to monitor [*35] and signal potential problems is a useful action since both the on- and off-farm electrical system is exposed to changing environments. The Commission finds the utilities' continuing efforts to improve their information programs deserve recognition.

The Commission also finds that an easily understood, uniform presentation needs to be developed for educating the farm community and others about stray voltage. While individual utility pamphlets or fliers are informative, the utilities and other interested parties should work with the Commission staff to develop a handout which uses easily understandable or defined terms in a common manner and which includes proven solutions that are available.

The Commission commends the utilities on their financial assistance programs for preventative or corrective actions to resolve on-farm problems. These programs which can develop as experience is gained will contribute to the economic health of the utilities' service territories as well as serve as effective inducements to the correction of problems rather than the use

of isolation where it is not necessary on a long-term basis.

To ensure that the Commission is aware of customer service policies [*36] concerning stray voltage, the Commission will require the utilities to update the policies filed in this docket as they are changed.

9. REA Cooperatives

The Commission does not have jurisdiction over the many electric cooperatives in this state. They are, of course subject to the direction and control of their members. Despite this jurisdictional fact, the electric cooperatives have been extremely helpful and involved with the proceedings in this docket as well as with the entire issue of stray voltage. As the representatives of the Wisconsin Electric Cooperatives Association have stated, WECA has participated and intends to continue to follow the Commission's efforts in this area including the pursuit of the recommendations in this order. In developing its statement of general policy on stray voltage, the Commission has kept in mind that the electric cooperatives have indicated that they will follow the Commission's lead despite the absence of jurisdiction by trying to ensure that policies are simple, easy to implement and flexible enough to deal with specific utility situations. The Commission will also extend technical assistance as needed or desired by the cooperatives [*37] to detect or resolve stray voltage problems.

10. Stray Voltage Analysis Team (SVAT)

While the exact responsibilities of the new SVAT will be developed jointly by the Commission and the Department of Agriculture, Trade and Consumer Protection in consultation with the Stray Voltage Task Force, we feel that it is appropriate to identify the responsibilities that the Commission intends for its SVAT members to perform. These responsibilities include the following:

(a) Reviewing the planning, operation and maintenance of rural distribution systems to prevent and solve stray voltage problems;

(b) working with DILHR and electricians to ensure effective on-farm wiring and grounding practices;

(c) working as a team with the utilities, farmers, veterinarians, feed specialists and electricians to solve stray voltage problems or to resolve disputes;

(d) working with all parties affected by stray voltage problems, including bankers and insurers to ensure a good understanding of the problem and its consequences; and

(e) carrying out individual stray voltage investigations under the terms and conditions of the new state stray voltage program.

The SVAT will have the Commission's full [*38] support and hopefully all parties will act to make its difficult job a success.

11. Other Commission Actions

The Commission's jurisdiction is limited to the actions of the utilities under its jurisdiction. Nonetheless, the Commission believes that its efforts to help resolve stray voltage problems should extend beyond its formal jurisdiction. Many issues needing to be addressed have no established procedure or organized group of sufficient size to comprehensively address them. For example, the Commission believes that the training and/or state certification of rural electricians is an important matter which should be pursued. The possibility of some form of mediation in lieu of litigation is also an issue that should be explored. The ability to establish an effective farm wiring inspection program is another issue deserving more consideration. Because addressing these matters is necessary to adequately solve the stray voltage problem, the Commission will work with all other parties including other government agencies and farmers to initiate and pursue solutions even if they are beyond its direct jurisdiction.

12. DC, EMF and Other Research

The Commission's investigation [*39] in this docket has primarily focused on 60 cycle ac shock as the cause of commonly experienced stray voltage problems. Dc voltage levels, according to the limited evidence presented in this case, need to substantially exceed the objectionable levels of ac voltage to be of concern. Such potential levels are usually associated with such facilities as gas pipelines or other structures using cathodic protection systems.

The impact of electromagnetic fields on livestock is currently being investigated and will be addressed by the Commission in its Advance Plan order in docket 05-EP-5. The Commission believes that it is important to distinguish between EMF and 60 cycle ac shock particularly since the latter is a solvable problem while the former is still being investigated to see if it is a problem.

The Commission does, however, conclude that it will seek further information on the effects of dc voltages and EMF on livestock. It will also encourage utilities to become active in locally controlled research projects which concentrate on true-to-life research of 60 cycle ac shock problems. The utilities should submit recommendations to the Commission on possible areas for such further [*40] research. The Commission will continue to track research on dc voltages and EMF and will make adjustments in its policies as are appropriate.

This order does not presume to answer all of the questions about stray voltage. What it has tried to do is establish a set of guidelines and recommendations to help detect and resolve present stray voltage problems and to prevent new or future problems. Our concern is for these farmers who have experienced the problem and for those who might. We are also concerned that stray voltage not become a problem that farmers focus on to the exclusion of others. The standardized testing and diagnostic procedures, the Commission oversight of rural distribution lines and the guidelines for neutral isolation are intended to ensure that all farmers are treated fairly and given effective help in a timely manner. To ensure that we continue to move forward, the Commission will prepare a written annual report describing the progress that has been made starting from September 1, 1988. With the continued cooperation and good faith of all parties, the conflicts over stray voltage which have sometimes arisen will hopefully become things of the past and the [*41] problems experienced mainly reasons to maintain our vigilance in the future to avoid

their reoccurrence.

Ultimate Findings of Fact

THE COMMISSION THEREFORE FINDS:

1. That stray voltages are low-level voltages present across points (for example, drinking cup to rear hooves) in which a current flow is produced when an animal simultaneously comes into contact with them.
2. That stray voltages can cause stress and behavioral problems in confined livestock that can result in production losses as well as physical and manageability problems. This can result in serious financial loss and psychological stress to a farmer and his or her family.
3. That stray voltages can be caused by sources either on-or off-farm. These sources can include utility equipment or the farmer's wiring or equipment.
4. That a level of concern above which corrective or mitigative action should be taken if production and behavioral problems exist is 1 milliampere in the "cow contact" areas (i.e., milking, feeding and watering areas).
5. That most stray voltage problems can be detected and corrected or mitigated if proper screening and diagnostic tests and equipment are used, including the use of resistors [*42] to simulate the resistance of the path through the animal.
6. That the best means to avoid stray voltage problems is the proper planning, installation, operation and maintenance of both the electric utility's and the farmer's electrical systems and equipment.
7. That neutral isolation, by separating the primary and secondary bonds, can be an effective way to mitigate an off-farm stray voltage problem. However, neutral isolation because it affects the integrity of a multiple grounded electric system should only be used where it is safe and needed to allow time for the cause of the problem to be corrected.
8. That there are other means of mitigating stray voltage problems if installed properly such as the equipotential plane and the Electronic Grounding System.
9. That accurate information, education and financial assistance to construct and maintain proper electrical systems is a good means to ensure that stray voltage problems are prevented, minimized or resolved.
10. That more research is needed concerning the potential impacts of dc voltages or electromagnetic fields on confined livestock.
11. That three-phase, open delta services derived from two-phase three-wire distribution [*43] systems can cause excess primary neutral current which might access the "cow contact" areas.

Conclusion of Law

THE COMMISSION CONCLUDES:

That it has jurisdiction under ss. 196.03, 196.28, 196.37 and 196.39 to enter an amended order setting forth its general policies concerning stray voltage and electric utilities as defined in s. 196.01(5).

Order

THE COMMISSION HEREBY ORDERS for each electric utility subject to the Commission's jurisdiction which has a distribution system which serves dairy or other confined livestock farms:

1. That such electric utility shall continue or start to implement the techniques to prevent or minimize the possibility of stray voltage problems set forth on pages 16 to 18 of the Findings of Fact above, or show to the Commission within 90 days good cause why it should not implement one or more of those techniques.

2. That within 90 days each electric utility shall conform, or shall file, its tariff(s) on stray voltage/neutral isolation, if necessary, to be consistent with the guidelines and principles set forth on pp. 24 to 25 of the Findings of Fact above, or show to the Commission good cause why it should not do so.

3. That within 90 days each [*44] electric utility with three-phase open delta services to farms shall submit to the Commission its policies and plans to replace these service systems by rebuild or adding the fourth wire as set forth on p. 15 of the Findings of Fact above.

4. That within 90 days each electric utility shall ensure that its stray voltage screening and diagnostic procedures are consistent with those principles and guidelines set forth on pages 6-13 of the Findings of Fact above, or show to the Commission good cause why it should not do so.

5. That within 90 days Northern States Power Company-Wisconsin, Wisconsin Electric Power Company, Wisconsin Public Service Corporation, Wisconsin Power & Light Company and Madison Gas & Electric Company shall submit to the Commission the following information, if it has not already done so:

a. its policy for future increase of primary voltage levels through upgrades or rebuilds;

b. its rural tree trimming policies;

c. its policy as it pertains to primary underground systems including the grounding procedures for these systems;

d. its policy on visual and/or more extensive inspections of rural distribution systems;

e. its policy on testing neutral isolators [*45] to ensure that they are operating effectively;

f. its policy for periodically checking phase load balance and criteria for rebalancing loads on three-phase lines.

6. That within 90 days of the effective date of this amended order, those affected electric and telecommunications utilities subject to the Commission's jurisdiction shall develop and implement mutual agreements between their responsible offices and/or personnel in respective common services areas to provide assistance to modify their facilities when necessary to achieve isolation for testing or limiting off-farm sources of stray voltage. Such agreements should be consistent with the guidelines and principles set forth on pp. 21 and 22 of the Findings of Fact above. The detailed practices, procedures and responsibilities of the agreements should be set forth in writing and maintained as needed by the parties. They do not need to be (but may be) included or incorporated into the stray voltage tariff(s) previously filed in this docket. The affected utilities shall notify the Commission that such agreements have been executed and shall submit one copy as a sample of the agreements in effect.

APPENDIX B

BEFORE THE [*46] PUBLIC SERVICE COMMISSION OF WISCONSIN

Investigation on the Commission's Own Motion into the Practices, Policies and Procedures Concerning Stray Voltage for Electric Distribution Utilities in Wisconsin

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GENE MCKAHAN
346 Wasson Lane
River Falls, WI 54022

DARRELL KLOCKZIEM
8200 Woodland Drive
Wausau, WI 54401

DUWAYNE STREBE

Marshfield Elec./Water Dept.
S2604 Eagle Road
Marshfield, WI 54449

TOM STASKEL
1447 Co. Line Road
Rudolph, WI 54475

WALTER A. PETERSON
Rural Route 1
Catawba, WI 54515

ROBERT ZELENSKI
836 Honey Creek Road
Burlington, WI 53105

GENE BAILEY
28901 Durand Avenue
Burlington, WI 53105

WILLIAM L. HOWELL
17611 1st
Union Grove, WI 53182

GEORGE LEEDLE
Route 3, Box 1452
Lake Geneva, WI 53147

ROBERT G. THOMPSON
5109 Cranberry Road
Burlington, WI 53105

CHARLES S. VAN SICKLE, ATTORNEY
Wheeler, Van Sickle & Anderson, S.C.
25 West Main Street, Suite 801
Madison, WI 53703

GRANT ELECTRIC COOPERATIVE
Robert Vosberg
231 North Sheridan Street
Lancaster, WI 53813
[*50]

DAIRYLAND POWER COOPERATIVE
Mr. Randy Baranczyk
P.O. Box 817
LaCrosse, WI 54602-0817

MRS. DOROTHY WOZNIAK
Rural Route 1, Box 16
Stanley, WI 54768

RANDALL G. LEECE
Sweet & Leece
114 North Church Street

Elkhorn, WI 53121

RONALD PIERICK

Rural Route 1, Highway 80
Highland, WI 53543

EVANSVILLE POWER AND LIGHT

Randy Rasmussen
31 South Madison
Evansville, WI 53536

GENE CLIFFORD

Wisconsin Electric Cooperative Assn.
P.O. Box 686
Madison, WI 53701

Nelson, Robert P.

From: Kunkel, Mark
Sent: Monday, December 04, 2000 1:35 PM
To: Nelson, Robert P.
Subject: Stray voltage draft

Bob,

As part of that stray voltage request, you should refer to the PSC's order that establishes a "level of concern" for stray voltage. In the order, the PSC established "a level of concern above which corrective or mitigative action should be taken if production and behavioral problems exist". The order establishes 1 milliampere as the level of concern for "cow contact" areas, i.e., milking, feeding and watering operations. However, the PSC said it would stay apprised of ongoing research and that it would raise or lower the level of concern as appropriate.

The order also requires electric utilities to ensure that their stray voltage screening and diagnostic procedures are consistent with principles and guidelines identified by the PSC in the order.

Any questions?

Mark Kunkel
Legislative Attorney
Legislative Reference Bureau
(608) 266-0131 mark.kunkel@legis.state.wi.us

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB-1305/P1dn
MDK&RPN:.....

cjs

Representative Kreibich:

Please review this preliminary draft very carefully to make sure that it achieves your intent. In particular, please note the following:

1. We weren't sure how you want to handle the appropriation for the loans and grants. Please review the appropriation and contact us if you want to make any changes.
2. The draft requires the PSC to administer the farmer assistance program. Is this okay, or do you want DOA to administer the program?
3. Do you want to revise the draft to limit the amount of a grant or loan that may be awarded or made to an individual recipient? Or do you want to require the PSC (or DOA) to promulgate rules that do so?
4. Do you want to revise proposed s. 895.496 so that it applies to cooperatives, as well as public utilities?
5. The position increase is funded by increasing the appropriation at s. 20.115 (3) (a), stats., which is a GPR appropriation for general program operations for marketing services of DATCP. We chose marketing services because there are ② PR appropriations for DATCP's stray voltage program under marketing services. However, we're not sure about your intent. Please contact us if you want a different appropriation. Also, the dollar amounts for the increase must be provided. In addition, if this draft is not incorporated into the governor's budget request, the draft must be revised to coordinate the timing of the appropriation increase with the passage of the budget. two
6. The instructions include a requirement that evidence about stray voltage levels is inadmissible if not calculated in substantial accordance with PSC procedures. We did not include this requirement because it is not necessary. Under the draft, immunity applies only if stray voltage is below the PSC's level of concern, as determined using principles and guidelines regarding stray voltage screening and diagnosis procedures under the PSC's order. If evidence about stray voltage is not determined in this manner, the evidence is not relevant to the issue of immunity. Therefore, we think that the draft accomplishes the same result as the requirement in the instructions.
7. The instructions include a requirement that, upon the request of a party to a court proceeding, the PSC must evaluate and offer a controlling opinion on whether PSC

procedures were substantially followed in calculating stray voltage levels. We did not include this requirement because it may violate separation of powers principles. The issue is whether an executive agency can make a finding of fact that is binding on a court. We are in the process of researching this issue and will get back to you on the results of our research.

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266-0131
E-mail: mark.kunkel@legis.state.wi.us

Robert P. Nelson
Senior Legislative Attorney
Phone: (608) 267-7511
E-mail: robert.nelson@legis.state.wi.us



State of Wisconsin
2001 - 2002 LEGISLATURE

LRB-1305/P1
MDK&RPN:.....

D-NOTE

cjs

PRELIMINARY DRAFT - NOT READY FOR INTRODUCTION

Rn
Friday
12/8

ger

1 AN ACT *ger*; relating to: stray voltage assistance to farmers, immunity related to
2 stray voltage, granting rule-making authority, and making an appropriation.

Analysis by the Legislative Reference Bureau

This is a preliminary draft. An analysis will be prepared for a subsequent version of this draft.

For further information see the *state* fiscal estimate, which will be printed as an appendix to this bill.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

3 SECTION 1. 20.005 (3) (schedule) of the statutes: at the appropriate place, insert
4 the following amounts for the purposes indicated:

			2001-02	2002-03
5				
6	20.155	Public service commission		
7	(1)	REGULATION OF PUBLIC UTILITIES		
8	(s)	Farmer assistance	SEG B \$4,000,000	\$4,000,000

1 **SECTION 2.** 20.155 (1) (im) of the statutes is created to read:

2 20.155 (1) (im) *Farmer assistance loan repayments.* All moneys received in
3 repayment of loans made under s. 196.857 (3) (a) to be used for grants and loans
4 under s. 196.857 (3) (a).

5 **SECTION 3.** 20.155 (1) (L) of the statutes is amended to read:

6 20.155 (1) (L) *Stray voltage program.* The amounts in the schedule for any
7 activity of the public service commission under s. 196.857 (1g) to (2m). All moneys
8 received under s. 196.857 (1m) (a), (2k) and (2m) for such activity shall be credited
9 to this appropriation.

History: 1971 c. 125; 1973 c. 90; 1975 c. 39; 1977 c. 29; 1979 c. 34; 1981 c. 20; 1985 a. 79, 296, 297, 332; 1987 a. 27, 399; 1991 a. 39, 269; 1993 a. 16, 123; 1995 a. 27; 1997 a. 27, 140, 229; 1999 a. 9, 32, 84, 150, 196.

10 **SECTION 4.** 20.155 (1) (s) of the statutes is created to read:

11 20.155 (1) (s) *Farmer assistance.* Biennially, from the utility public benefits
12 fund, the amounts in the schedule for awarding grants and making loans under s.
13 196.857 (3).

14 **SECTION 5.** 93.41 (1) of the statutes is amended to read:

15 93.41 (1) The department shall participate in the stray voltage program
16 established under s. 196.857 (1g) (a).

History: 1987 a. 27, 399; 1991 a. 39; 1993 a. 16, 399; 1995 a. 27; 1997 a. 27.

17 **SECTION 6.** 196.64 (1) of the statutes is amended to read:

18 196.64 (1) If Except as provided in this subsection, if a director, officer,
19 employee or agent of a public utility, in the course of the discharge of his or her duties,
20 wilfully, wantonly or recklessly does, causes or permits to be done any matter, act or
21 thing prohibited or declared to be unlawful under this chapter or ch. 197, or wilfully,
22 wantonly or recklessly fails to do any act, matter or thing required to be done under
23 this chapter, the public utility shall be liable to the person injured thereby in treble
24 the amount of damages sustained in consequence of the violation. Any recovery

1 under this subsection related to damages resulting from stray voltage shall be
 2 limited to the amount of the damages sustained in consequence of the violation. No
 3 recovery as provided in this section provided shall affect a recovery by the state of
 4 the penalty prescribed for such violation. PLAIN TEXT!

History: 1981 c. 390; 1983 a. 53; 1991 a. 39.

SECTION 7. 196.857 (title) of the statutes is amended to read:

196.857 (title) Stray voltage program; farmer assistance.

History: 1987 a. 27, 399; 1991 a. 39; 1993 a. 16; 1995 a. 27; 1997 a. 27, 35.

SECTION 8. 196.857 (3) of the statutes is created to read:

196.857 (3) FARMER ASSISTANCE. (a) From the appropriations under s. 20.155
 (1) (im) and (s), the commission shall award grants and make loans to operators of
 dairy, beef, or swine farms for evaluating stray voltage levels and sources, replacing
 existing electrical wiring, and installing energy efficient equipment. The
 commission ~~shall~~ shall determine the interest rate on loans under this paragraph.
 The interest rate shall be as low as possible but shall be sufficient to fully pay all
 interest expenses incurred by the state in making the loans and to provide reserves
 that are reasonably expected to be required in the judgment of the commission to
 ensure against losses arising from delinquency and default in the repayment of the
 loans.

(b) The commission shall promulgate rules establishing criteria and procedures for awarding grants and making loans under par. (a).

SECTION 9. 895.496 of the statutes is created to read:

895.496 Liability exemption; stray voltage. (1) In this section:

(a) "Farmer" and "farm premises" have the meaning given in s. 102.04 (3).

(b) "Public Service Commission order" means ~~the~~ ^{any} order issued by the Public Service Commission that establishes the principles and guidelines regarding stray or modifies

SECTION 9

1 voltage screening and diagnostic procedures used to test the presence and amount
2 of stray voltage and the level of concern about stray voltage above which corrective
3 or mitigative action should be taken.

4 (c) "Public utility" has the meaning given in s. 196.01 (5) (a)

5 (2) A public utility that provides power or light to a farmer is immune from
6 liability for any death, injury, or property damage caused by stray voltage on the farm
7 premises if that stray voltage is below the level of concern specified in the Public
8 Service Commission order, as determined using the principles and guidelines
9 regarding stray voltage screening and diagnostic procedures specified in the Public
10 Service Commission order. Upon request of any party to an action for damages
11 related to stray voltage, the Public Service Commission shall evaluate and testify as
12 to whether the ^{most recently issued} Public Service Commission order was followed in calculating the
13 amount of stray voltage.

14 (3) The immunity provided in sub. (2) does not apply if the death, injury, or
15 property damage was caused by willful or wanton acts or omissions.

16 SECTION 10. Appropriation changes.

17 (1) ELECTRICAL INSPECTORS. In the schedule under section 20.005 (3) of the
18 statutes for the appropriation to the department of agriculture, trade and consumer
19 protection under section 20.115 (3) (a) of the statutes, as affected by the acts of 2001,
20 the dollar amount is increased by \$-0- for fiscal year 2001-02 and the dollar amount
21 is increased by \$-0- for fiscal year 2002-03 to increase the authorized FTE positions
22 for the department by 6.0 GPR positions for the purpose of inspecting the electrical
23 wiring of dairy, beef, and swine farms and evaluating stray voltage levels.

24 SECTION 11. Initial applicability.

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB-1305/P1dn
MDK&RPN:cjs:rs

December 6, 2000

Representative Kreibich:

Please review this preliminary draft very carefully to make sure that it achieves your intent. In particular, please note the following:

1. We weren't sure how you want to handle the appropriation for the loans and grants. Please review the appropriation and contact us if you want to make any changes.
2. The draft requires the PSC to administer the farmer assistance program. Is this okay, or do you want DOA to administer the program?
3. Do you want to revise the draft to limit the amount of a grant or loan that may be awarded or made to an individual recipient? Or do you want to require the PSC (or DOA) to promulgate rules that do so?
4. Do you want to revise proposed s. 895.496 so that it applies to cooperatives, as well as public utilities?
5. The position increase is funded by increasing the appropriation at s. 20.115 (3) (a), stats., which is a GPR appropriation for general program operations for marketing services of DATCP. We chose marketing services because there are two PR appropriations for DATCP's stray voltage program under marketing services. However, we're not sure about your intent. Please contact us if you want a different appropriation. Also, the dollar amounts for the increase must be provided. In addition, if this draft is not incorporated into the governor's budget request, the draft must be revised to coordinate the timing of the appropriation increase with the passage of the budget.
6. The instructions include a requirement that evidence about stray voltage levels is inadmissible if not calculated in substantial accordance with PSC procedures. We did not include this requirement because it is not necessary. Under the draft, immunity applies only if stray voltage is below the PSC's level of concern, as determined using principles and guidelines regarding stray voltage screening and diagnosis procedures under the PSC's order. If evidence about stray voltage is not determined in this manner, the evidence is not relevant to the issue of immunity. Therefore, we think that the draft accomplishes the same result as the requirement in the instructions.
7. The instructions include a requirement that, upon the request of a party to a court proceeding, the PSC must evaluate and offer a controlling opinion on whether PSC

procedures were substantially followed in calculating stray voltage levels. We did not include this requirement because it may violate separation of powers principles. The issue is whether an executive agency can make a finding of fact that is binding on a court. We are in the process of researching this issue and will get back to you on the results of our research.

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266-0131
E-mail: mark.kunkel@legis.state.wi.us

Robert P. Nelson
Senior Legislative Attorney
Phone: (608) 267-7511
E-mail: robert.nelson@legis.state.wi.us

D-NOTE

P2

By
Thursday
12/21

PRELIMINARY DRAFT - NOT READY FOR INTRODUCTION

gen cat.

and electrical
wiring

1 AN ACT ~~to amend 20.155 (1) (L), 93.41 (1), 196.64 (1) and 196.857 (title); and to~~
 2 ~~create 20.155 (1) (im), 20.155 (1) (s), 196.857 (3) and 895.496 of the statutes;~~
 3 relating to: stray voltage, assistance to farmers, immunity related to stray
 4 voltage, granting rule-making authority, and making an appropriation.

Analysis by the Legislative Reference Bureau

This is a preliminary draft. An analysis will be prepared for a subsequent version of this draft.

For further information see the *state* fiscal estimate, which will be printed as an appendix to this bill.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

5 SECTION 1. 20.005 (3) (schedule) of the statutes: at the appropriate place, insert
 6 the following amounts for the purposes indicated:

INSERT 1-5:
see p. 3. l. 11

2001-02 2002-03

20.155 ^(B) ~~Public service commission~~ *Administration, department of* ^(B)

(1) ~~REGULATION OF PUBLIC UTILITIES~~ *SUPERVISION AND MANAGEMENT; LAND INFORMATION BOARD* ^(CS)

^(S) ² ~~Director/assistance~~ *Stray voltage and electrical wiring* SEG B \$4,000,000 \$4,000,000

SECTION 2. 20.155 (1) ^(a) ~~(a)~~ of the statutes is created to read: ^(I)

20.155 (1) ^(a) ~~Director/assistance~~ *Stray voltage and electrical wiring* loan repayments. All moneys received in

repayment of loans made under s. ~~196.857 (1g)~~ *16.956 (1)* to be used for grants and loans

under s. ~~196.857 (1g)~~ *16.956 (1)*

SECTION 3. 20.155 (1) (L) of the statutes is amended to read:

20.155 (1) (L) *Stray voltage program*. The amounts in the schedule for any activity of the public service commission under s. 196.857 (1g) to (2m). All moneys received under s. 196.857 (1m) (a), (2k) and (2m) for such activity shall be credited to this appropriation.

SECTION 4. 20.155 (1) ^(g) ~~(g)~~ of the statutes is created to read: ^(I)

20.155 (1) ^(g) ~~Director/assistance~~ *Stray voltage and electrical wiring*. Biennially, from the utility public benefits

fund, the amounts in the schedule for awarding grants and making loans under s.

~~196.857 (1g)~~ *16.956 (1)*

SECTION 5. 93.41 (1) of the statutes is amended to read:

93.41 (1) The department shall participate in the stray voltage program established under s. 196.857 (1g) (a).

SECTION 6. 196.64 (1) of the statutes is amended to read:

196.64 (1) If Except as provided in this subsection, if a director, officer, employee or agent of a public utility, in the course of the discharge of his or her duties, wilfully, wantonly or recklessly does, causes or permits to be done any matter, act or

1 thing prohibited or declared to be unlawful under this chapter or ch. 197, or wilfully,
2 wantonly or recklessly fails to do any act, matter or thing required to be done under
3 this chapter, the public utility shall be liable to the person injured thereby in treble
4 the amount of damages sustained in consequence of the violation. Any recovery
5 under this subsection related to damages resulting from stray voltage shall be
6 limited to the amount of the damages sustained in consequence of the violation. No
7 recovery as provided in this section provided shall affect a recovery by the state of
8 the penalty prescribed for such violation.

(B) and electrical wiring

9 SECTION 7. 196.857 (title) of the statutes is amended to read:

INSERT 1-5:

10/ ~~196.857 (title) Stray voltage program; farmer assistance.~~

11 SECTION 8. ~~196.857 (a)~~ ^{16.956} of the statutes is created to read:

12 ~~196.857 (a) FARMER ASSISTANCE (a)~~ From the appropriations under s. 20. ⁵⁰⁵
13 (1) ~~(a)~~ and ~~(b)~~, the ~~commission~~ ^{department} shall award grants and make loans to operators of
14 dairy, beef, or swine farms for ~~evaluating~~ ^{(eliminating potential) concerns} stray voltage ~~levels~~ and sources, replacing

15 ~~electrical wiring~~ and ~~installing energy efficient equipment~~. The ^{(2) (B)}
16 ~~commission~~ ^{department} shall determine the interest rate on loans under ~~this paragraph~~ ^{sub. (1)}. The
17 interest rate shall be as low as possible but shall be sufficient to fully pay all interest
18 expenses incurred by the state in making the loans and to provide reserves that are
19 reasonably expected to be required in the judgment of the ~~commission~~ ^{department} to ensure
20 against losses arising from delinquency and default in the repayment of the loans.

21 ^{(3) (B)} The ~~commission~~ ^{department} shall promulgate rules establishing criteria and
22 procedures for awarding grants and making loans under ~~sub. (1)~~ ^{sub. (1)}

END of INSERT

23 SECTION 9. 895.496 of the statutes is created to read:

24 895.496 Liability exemption; stray voltage. (1) In this section:

25 (a) "Farmer" and "farm premises" have the meaning given in s. 102.04 (3).

INSERT 03-159

tests to determine whether stray voltage is present in a system or from off the system

1 (b) "Public Service Commission order" means any order issued by the Public
2 Service Commission that establishes or modifies the principles and guidelines
3 regarding stray voltage screening and diagnostic procedures used to test the
4 presence and amount of stray voltage and the level of concern about stray voltage
5 above which corrective or mitigative action should be taken.

6 (c) "Public utility" has the meaning given in s. 196.01 (5) (a)

7 (2) A public utility that provides power or light to a farmer is immune from
8 liability for any death, injury, or property damage caused by stray voltage on the farm
9 premises if that stray voltage is below the level of concern specified in the most
10 recently issued Public Service Commission order, as determined using the principles
11 and guidelines regarding stray voltage screening and diagnostic procedures
12 specified in the most recently issued Public Service Commission order. Upon request
13 of any party to an action for damages related to stray voltage, Public Service
14 Commission shall evaluate and testify as to whether the most recently issued Public
15 Service Commission order was followed in calculating the amount of stray voltage.

16 (3) The immunity provided in sub. (2) does not apply if the death, injury, or
17 property damage was caused by willful or wanton acts or omissions.

18 **SECTION 10. Appropriation changes.**

19 (1) ELECTRICAL INSPECTORS. In the schedule under section 20.005 (3) of the
20 statutes for the appropriation to the department of ~~agriculture, trade and consumer~~
21 ~~protection~~ ^{commerce} ~~143 (3) (j)~~ of the statutes, as affected by the acts of 2001,
22 the dollar amount is increased by \$-0- for fiscal year 2001-02 and the dollar amount
23 is increased by \$-0- for fiscal year 2002-03 to increase the authorized FTE positions
24 for the department by ~~10~~ ^{5.0} GPR positions for the purpose of ~~inspecting the electrical~~
25 ~~wiring of dairy, beef, and swine farms and evaluating stray voltage levels~~

5.0

making electrical
inspections

2001-2002 DRAFTING INSERT
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB-1305/P2ins
MDK.....

1
2
3
4
5

109

INSERT 3-15:

A farm operator is not eligible to receive an award or grant under this subsection unless the farm operator has conducted tests to determine whether stray voltage problems result from the primary distribution system or from off-farm sources transmitted over the primary distribution system.

public utility that provides electric service to the

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB-1305/P2dn

MDK/.....

cjs

9# - References to
stray voltage assistance
also refer to electrical
wiring assistance.

Representative Kreibich:

This version makes the following changes to the previous version:

- * DOA, not the PSC, administers the ~~stray voltage assistance~~ program.
- * The language establishing the program has changes, including a requirement that a farm operator is not eligible for grants or loans unless the ~~operator~~ ^{public utility} has conducted certain tests.
- * The position increase for electrical inspectors pertains to the department of commerce, not DATCP. Is the appropriation that is increased, i.e., s. 20.143 (3) (j), stats., correct? Note that this appropriation is for safety and building operations, and I assume it covers the 2.0 electrical inspector positions that I understand are authorized under current law. However, it is a PR appropriation, not GPR, and I am not sure whether you want a PR or GPR appropriation.
- * The initial applicability provision is revised to refer to actions commenced on the effective date of the bill. Note that it is not necessary to refer to actions commenced on *or after* that date, because "on" includes "after".

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266-0131
E-mail: mark.kunkel@legis.state.wi.us

★

**DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU**

LRB-1305/P2dn
MDK:cjs:km

December 19, 2000

Representative Kreibich:

This version makes the following changes to the previous version:

1. References to stray voltage assistance also refer to electrical wiring assistance.
2. DOA, not the PSC, administers the program.
3. The language establishing the program has changes, including a requirement that a farm operator is not eligible for grants or loans unless the public utility has conducted certain tests.
4. The position increase for electrical inspectors pertains to the department of commerce, not DATCP. Is the appropriation that is increased, i.e., s. 20.143 (3) (j), stats., correct? Note that this appropriation is for safety and building operations, and I assume it covers the 2.0 electrical inspector positions that I understand are authorized under current law. However, it is a PR appropriation, not GPR, and I am not sure whether you want a PR or GPR appropriation.
5. The initial applicability provision is revised to refer to actions commenced on the effective date of the bill. Note that it is not necessary to refer to actions commenced on *or after* that date, because "on" includes "after."

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266-0131
E-mail: mark.kunkel@legis.state.wi.us

Kunkel, Mark

From: Larson, Rebecca A [rebecca.a.larson@xcelenergy.com]
Sent: Friday, January 05, 2001 4:32 PM
To: 'Kunkel, Mark'
Subject: RE: Stray Voltage Draft



Stray Voltage Draft -
January ...

Thanks Mark,

I have informed the Governor's office about the changes. Please disregard the last email, I received a couple additional changes after my email...it always seem to work that way. Also, it was recommended to include a definition of stray voltage. This can be done by referencing the PSC order in 05-EI-106, as modified or amended.

Sorry about the multiple emails.

Have a good weekend.

Rebecca

<<Stray Voltage Draft - January 4 changes2.doc>>

> -----Original Message-----

> From: Kunkel, Mark [SMTP:Mark.Kunkel@legis.state.wi.us]
> Sent: Friday, January 05, 2001 3:57 PM
> To: 'Larson, Rebecca A'
> Subject: RE: Stray Voltage Draft

>

> Rebecca:

>

> If you have been in touch with someone at the governor's office about
> including this draft in the budget, please make sure that you let them
> know
> that you would like to make the changes described below, which I haven't
> looked at yet.

>

> As for timing, we are busy working on the budget right now, and I won't
> know
> what to tell you until early next week.

>

>

> Mark Kunkel
> Legislative Attorney
> Legislative Reference Bureau
> (608) 266-0131 mark.kunkel@legis.state.wi.us

>

>

> -----Original Message-----

> From: Larson, Rebecca A [mailto:rebecca.a.larson@xcelenergy.com]
> Sent: Friday, January 05, 2001 3:51 PM
> To: 'mark.kunkel@legis.state.wi.us'

> Subject: Stray Voltage Draft

>

>

>

> Good Afternoon Mark,

>

> I recently held an internal meeting with some of our stray voltage and

> legal

> people in the company who requested changes to the stray voltage draft. I

> have incorporated that language in the draft in a manner that I hope will

> be

> easy to understand. I cut and pasted the acrobat document into a

> Microsoft

> Word document that I could manipulate. I have highlighted the changes in

> red. I also included one clarification which is highlighted in blue.

>

> With regard to question 4 of your latest drafters note, we would like to

> increase the inspectors at DOC by 5 and continue to fund them using

> Program

> Revenue. I think that is sufficient to answer your question.

>

> Lastly, could you please let me know when I might be able to receive a

> revised draft, I would really appreciate it.

>

> Thank you.

>

> Sincerely,

>

> Rebecca Larson

> Manager, Government Relations

> Xcel Energy-Madison Office

> (608) 280-7314

>

> <<Stray Voltage Draft - January 4 changes.doc>>

2001 – 2002 LEGISLATURE

PRELIMINARY DRAFT – NOT READY FOR INTRODUCTION

AN ACT to amend 196.64 (1); and to create 16.956, 20.505(1) (jm), 20.505 (1) (q) and 895.496 of the statutes; relating to: stray voltage and electrical wiring assistance to farmers, immunity related to stray voltage, granting rule-making authority, and making an appropriation.

Analysis by the Legislative Reference Bureau

This is a preliminary draft. An analysis will be prepared for a subsequent version of this draft. For further information see the *state* fiscal estimate, which will be printed as an appendix to this bill.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

SECTION 1. 16.956 of the statutes is created to read:

16.956 Stray voltage and electrical wiring assistance. (1) From the appropriations under s. 20.505 (1) (jm) and (q), the department shall award grants and make loans to operators of dairy, beef, or swine farms for eliminating potential

SECTION 1

stray voltage concerns and sources, and replacing electrical wiring. A farm operator is not eligible to receive an award or grant under this subsection unless the public utility that provides electric service to the farm has conducted tests to determine whether stray voltage problems result from the primary distribution system or from off-farm sources transmitted over the primary distribution system.

(2) The department shall determine the interest rate on loans under sub. (1). The interest rate shall be as low as possible but shall be sufficient to fully pay all interest expenses incurred by the state in making the loans and to provide reserves that are reasonably expected to be required in the judgment of the department to ensure against losses arising from delinquency and default in the repayment of the loans.

(3) The department shall promulgate rules establishing criteria and procedures for awarding grants and making loans under sub. (1), including procedures to assure the work was completed in accordance with acceptable practices. ✓

SECTION 2. 20.005 (3) (schedule) of the statutes: at the appropriate place, insert the following amounts for the purposes indicated:

2001-02 2002-03

20.505 Administration, department of

(1) SUPERVISION AND MANAGEMENT; LAND INFORMATION BOARD

(q) Stray voltage and electrical wiring assistance SEG B \$4,000,000 \$4,000,000

SECTION 3. 20.505(1) (jm) of the statutes is created to read:

SECTION 3

20.505 (1) (jm) *Stray voltage and electrical wiring loan repayments.* All moneys received in repayment of loans made under s. 16.956 (1) to be used for grants and loans under s. 16.956 (1).

SECTION 4. 20.505 (1) (q) of the statutes is created to read:

20.505 (1) (q) *Stray voltage and electrical wiring assistance.* Biennially, from the utility public benefits fund, the amounts in the schedule for awarding grants and making loans under s. 16.956 (1).

Delete Section 5 - Create sub 3 under 196.64 to read:

This section does not apply to damages resulting from stray voltage. ✓

(Note: No changes to 196.64(1))

SECTION 6. 895.496 of the statutes is created to read:

895.496 Liability exemption; stray voltage. (1) In this section:

(a) "Farmer" and "farm premises" have the meaning given in s. 102.04 (3).

Delete (b) ✓

SECTION 6

(c) "Public utility" has the meaning given in s. 196.01 (5) (a)

(2) A public utility is immune from liability for any damages caused by or resulting from stray voltage if the stray voltage contributed by the public utility as determined using the Public Service Commission of Wisconsin (PSCW) principles and guidelines regarding stray voltage screening and diagnostic procedures in effect at the time of measurement is below the PSCW- established level of concern in effect at the time of measurement. Upon request of any party to an action for damages related to stray voltage, the Public Service Commission shall evaluate and testify as to whether the applicable PSCW Order was followed in calculating the amount of stray voltage.

Delete Section 3 of the draft

(1) ELECTRICAL INSPECTORS. In the schedule under section 20.005 (3) of the statutes for the appropriation to the department of commerce under section 20.143

(3) (j) of the statutes, as affected by the acts of 2001, the dollar amount is increased by \$-0- for fiscal year 2001-02 and the dollar amount is increased by \$-0- for fiscal year 2002-03 to increase the authorized FTE positions for the department by 5.0 GPR positions for the purpose of making electrical inspections.

SECTION 8 Initial applicability.

- 5 - 2001 - 2002 Legislature LRB-1305/P2
MDK&RPN:cjs:km

SECTION 8

(1) STRAY VOLTAGE IMMUNITY. The treatment of sections 196.64 (1) and 895.496 of the statutes first applies to actions commenced on the effective date of this subsection.

(END)

D-NOTE

1

PRELIMINARY DRAFT - NOT READY FOR INTRODUCTION

By
1/10
(will be used
as basis for
budget draft)

RM
NOT
RUN

INSERT A

1 AN ACT to amend 196.64 (1), and to create 16.956, 20.505(1) (jm), 20.505 (1) (q)
2 and 895.496 of the statutes; relating to: stray voltage and electrical wiring
3 assistance to farmers, immunity related to stray voltage, granting rule-making
4 authority, and making an appropriation.

Analysis by the Legislative Reference Bureau

~~This is a preliminary draft. An analysis will be prepared for a subsequent version of this draft.~~

For further information see the *state* fiscal estimate, which will be printed as an appendix to this bill.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

5 SECTION 1. 16.956 of the statutes is created to read:
6 16.956 Stray voltage and electrical wiring assistance. (1) From the
7 appropriations under s. 20.505 (1) (jm) and (q), the department shall award grants
8 and make loans to operators of dairy, beef, or swine farms for eliminating potential

SECTION 1

1 stray voltage concerns and sources, and replacing electrical wiring. A farm operator
2 is not eligible to receive an award or grant under this subsection unless the public
3 utility that provides electric service to the farm has conducted tests to determine
4 whether stray voltage problems result from the primary distribution system or from
5 off-farm sources transmitted over the primary distribution system.

6 (2) The department shall determine the interest rate on loans under sub. (1).
7 The interest rate shall be as low as possible but shall be sufficient to fully pay all
8 interest expenses incurred by the state in making the loans and to provide reserves
9 that are reasonably expected to be required in the judgment of the department to
10 ensure against losses arising from delinquency and default in the repayment of the
11 loans.

12 (3) The department shall promulgate rules establishing criteria and
13 procedures for awarding grants and making loans under sub. (1).

14 **SECTION 2.** 20.005 (3) (schedule) of the statutes: at the appropriate place, insert
15 the following amounts for the purposes indicated:

		2001-02	2002-03
17	20.505 Administration, department of		
18	(1) SUPERVISION AND MANAGEMENT; LAND INFORMATION		
19	BOARD		
20	(q) Stray voltage and electrical wir-		
21	ing assistance	SEG B	\$4,000,000 \$4,000,000

22 **SECTION 3.** 20.505(1) (jm) of the statutes is created to read:

*including procedures for
assuring that any work is completed
in accordance with acceptable practices*

INSERT 3-7

1 20.505 (1) (jm) *Stray voltage and electrical wiring loan repayments.* All moneys
2 received in repayment of loans made under s. 16.956 (1) to be used for grants and
3 loans under s. 16.956 (1).

4 SECTION 4. 20.505 (1) (q) of the statutes is created to read:

5 20.505 (1) (q) *Stray voltage and electrical wiring assistance.* Biennially, from
6 the utility public benefits fund, the amounts in the schedule for awarding grants and
7 making loans under s. 16.956 (1).

8 ~~SECTION 5. 196.64 (1) of the statutes is amended to read:~~

9 ~~196.64 (1) If Except as provided in this subsection, if a director, officer,
10 employee or agent of a public utility, in the course of the discharge of his or her duties,
11 wilfully, wantonly or recklessly does, causes or permits to be done any matter, act or
12 thing prohibited or declared to be unlawful under this chapter or ch. 197, or wilfully,
13 wantonly or recklessly fails to do any act, matter or thing required to be done under
14 this chapter, the public utility shall be liable to the person injured thereby in treble
15 the amount of damages sustained in consequence of the violation. Any recovery
16 under this subsection related to damages resulting from stray voltage shall be
17 limited to the amount of the damages sustained in consequence of the violation. No
18 recovery as provided in this section provided shall affect a recovery by the state of
19 the penalty prescribed for such violation.~~

20 SECTION 6. 895.496 of the statutes is created to read:

21 **895.496 Liability exemption; stray voltage.** (1) In this section:

22 (a) "Farmer" and "farm premises" have the meaning given in s. 102.04 (3).

23 (b) ~~"Public Service Commission order"~~ means any order issued by the Public
24 Service Commission that establishes or modifies the principles and guidelines
25 regarding stray voltage screening and diagnostic procedures used to test the

1 presence and amount of stray voltage and the level of concern about stray voltage
2 above which corrective or mitigative action should be taken.

3 (b) "Public utility" has the meaning given in s. 196.01 (5) (a).

4 ~~(2) A public utility that provides power or light to a farmer is immune from~~
5 ~~liability for any death, injury, or property damage caused by stray voltage of a farm~~
6 ~~premises if that stray voltage is below the level of concern specified in the most~~
7 ~~recently issued Public Service Commission order as determined using the principles~~
8 ~~and guidelines regarding stray voltage screening and diagnostic procedures~~
9 ~~specified in the most recently issued Public Service Commission order. Upon request~~

10 of any party to an action for damages related to stray voltage, ^(the) Public Service
11 Commission shall evaluate and testify as to whether the ^(applicable order of) most recently issued ^{the} Public
12 Service Commission ~~order~~ was followed in calculating the amount of stray voltage.

INSERT
4-9

13 ~~(3) The immunity provided in sub. (2) does not apply if the death, injury, or~~
14 ~~property damage was caused by willful or wanton acts or omissions.~~

15 **SECTION 7. Appropriation changes.**

16 (1) ELECTRICAL INSPECTORS. In the schedule under section 20.005 (3) of the
17 statutes for the appropriation to the department of commerce under section 20.143
18 (3) (j) of the statutes, as affected by the acts of 2001, the dollar amount is increased
19 by \$-0- for fiscal year 2001-02 and the dollar amount is increased by \$-0- for fiscal
20 year 2002-03 to increase the authorized FTE positions for the department by 5.0
21 GPR positions for the purpose of making electrical inspections.

22 **SECTION 8. Initial applicability.**

①

(1) STRAY VOLTAGE IMMUNITY. The treatment of sections 196.64 ~~(1)~~ and 895.496
of the statutes first applies to actions commenced on the effective date of this
subsection.

2

3

4

(END)

1

INSERT A:

This bill creates immunity from liability for public utilities for stray voltage. Under the bill, a public utility is immune from liability for any damage caused by or resulting from stray voltage contributed by the public utility if the stray voltage is below the level of concern established by the public service commission (PSC) that is in effect at the time of measurement. In addition, the stray voltage must be determined using the PSC's principles and guidelines regarding stray voltage screening and diagnostic procedures that are in effect at the time of measurement. Upon the request of any party to an action for damages for stray voltage, the PSC must evaluate and testify as to whether its applicable order was followed in calculating the amount of stray voltage. The bill also limits damages from stray voltage to the amount of damages sustained in consequence of a public utility's willful, wanton, or reckless violation of state law. Under current law, such a public utility is liable for treble the amount of damages.

In addition, the bill requires the department of administration (DOA) to award grants and make low-interest loans to operators of dairy, beef, or swine farms for eliminating stray voltage concerns and sources or replacing electrical wiring. The funding source for this assistance is the utility public benefits fund. A farm operator is not eligible for this assistance unless the public utility that provides electric service to the farm has conducted tests to determine whether stray voltage problems result from the primary distribution system or from off-farm sources that are transmitted over the primary distribution system. The bill also requires DOA to promulgate rules establishing criteria and procedures for awarding the grants and making the loans, including procedures for assuring that any work is completed according to acceptable practices.

2

INSERT 3-7:

3

SECTION 1. 196.64 (3) of the statutes is created to read:

4

196.64 (3) This section does not apply to damages resulting from stray voltage.

5

INSERT 4-9:

6

(2) A public utility is immune from liability for any damage caused by or resulting from stray voltage contributed by the public utility if the stray voltage is below the level of concern established by the public service commission that is in effect at the time of measurement, as determined using the principles and guidelines

7

8

9

- 1 of the public service commission regarding stray voltage screening and diagnostic
- 2 procedures that are in effect at the time of measurement.

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB-1305/1dn

MDK: /.....

cjs

Representative Kreibich:

This version incorporates changes requested by Rebecca Larson.

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266-0131
E-mail: mark.kunkel@legis.state.wi.us

**DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU**

LRB-1305/1dn
MDK:cjs:kjf

January 10, 2001

Representative Kreibich:

This version incorporates changes requested by Rebecca Larson.

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266-0131
E-mail: mark.kunkel@legis.state.wi.us

D-NOTE

2001 BILL

By 1/12,
if possible
(only change
is on
this page)

1 AN ACT to create 16.956, 20.505(1) (jm), 20.505 (1) (q), 196.64 (3) and 895.496 of
2 the statutes; relating to: stray voltage and electrical wiring assistance to
3 farmers, immunity related to stray voltage, granting rule-making authority,
4 and making an appropriation.

In addition, the
reg

Analysis by the Legislative Reference Bureau

~~This~~ bill creates immunity from liability for public utilities for stray voltage. Under the bill, a public utility is immune from liability for any damage caused by or resulting from stray voltage contributed by the public utility if the stray voltage is below the level of concern established by the public service commission (PSC) that is in effect at the time of measurement. In addition, the stray voltage must be determined using the PSC's principles and guidelines regarding stray voltage screening and diagnostic procedures that are in effect at the time of measurement. Upon the request of any party to an action for damages for stray voltage, the PSC must evaluate and testify as to whether its applicable order was followed in calculating the amount of stray voltage. The bill also limits damages from stray voltage to the amount of damages sustained in consequence of a public utility's willful, wanton, or reckless violation of state law. Under current law, such a public utility is liable for treble the amount of damages.

~~In addition, the~~ bill requires the department of administration (DOA) to award grants and make low-interest loans to operators of dairy, beef, or swine farms for eliminating stray voltage concerns and sources or replacing electrical wiring. The funding source for this assistance is the utility public benefits fund. A farm operator

Move
this
paragraph
up

¶ This

BILL

is not eligible for this assistance unless the public utility that provides electric service to the farm has conducted tests to determine whether stray voltage problems result from the primary distribution system or from off-farm sources that are transmitted over the primary distribution system. The bill also requires DOA to promulgate rules establishing criteria and procedures for awarding the grants and making the loans, including procedures for assuring that any work is completed according to acceptable practices.

For further information see the *state* fiscal estimate, which will be printed as an appendix to this bill.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

1 SECTION 1. 16.956 of the statutes is created to read:

2 **16.956 Stray voltage and electrical wiring assistance.** (1) From the
3 appropriations under s. 20.505 (1) (jm) and (q), the department shall award grants
4 and make loans to operators of dairy, beef, or swine farms for eliminating potential
5 stray voltage concerns and sources, and replacing electrical wiring. A farm operator
6 is not eligible to receive an award or grant under this subsection unless the public
7 utility that provides electric service to the farm has conducted tests to determine
8 whether stray voltage problems result from the primary distribution system or from
9 off-farm sources transmitted over the primary distribution system.

10 (2) The department shall determine the interest rate on loans under sub. (1).
11 The interest rate shall be as low as possible but shall be sufficient to fully pay all
12 interest expenses incurred by the state in making the loans and to provide reserves
13 that are reasonably expected to be required in the judgment of the department to
14 ensure against losses arising from delinquency and default in the repayment of the
15 loans.

16 (3) The department shall promulgate rules establishing criteria and
17 procedures for awarding grants and making loans under sub. (1), including

BILL

1 procedures for assuring that any work is completed in accordance with acceptable
2 practices.

3 **SECTION 2.** 20.005 (3) (schedule) of the statutes: at the appropriate place, insert
4 the following amounts for the purposes indicated:

5 2001-02 2002-03

6 **20.505 Administration, department of**

7 (1) SUPERVISION AND MANAGEMENT; LAND INFORMATION

8 BOARD

9 (q) Stray voltage and electrical wir-

10 ing assistance SEG B \$4,000,000 \$4,000,000

11 **SECTION 3.** 20.505(1) (jm) of the statutes is created to read:

12 20.505 (1) (jm) *Stray voltage and electrical wiring loan repayments.* All moneys
13 received in repayment of loans made under s. 16.956 (1) to be used for grants and
14 loans under s. 16.956 (1).

15 **SECTION 4.** 20.505 (1) (q) of the statutes is created to read:

16 20.505 (1) (q) *Stray voltage and electrical wiring assistance.* Biennially, from
17 the utility public benefits fund, the amounts in the schedule for awarding grants and
18 making loans under s. 16.956 (1).

19 **SECTION 5.** 196.64 (3) of the statutes is created to read:

20 196.64 (3) This section does not apply to damages resulting from stray voltage.

21 **SECTION 6.** 895.496 of the statutes is created to read:

22 **895.496 Liability exemption; stray voltage.** (1) In this section:

23 (a) "Farmer" and "farm premises" have the meaning given in s. 102.04 (3).

24 (b) "Public utility" has the meaning given in s. 196.01 (5) (a).

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB-1305/2dn
MDK:.....

Representative Kreibich:

This version is identical to the previous version, except for the order of the discussion in the analysis.

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266-0131
E-mail: mark.kunkel@legis.state.wi.us

**DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU**

LRB-1305/2dn
MDK:cjs:pg

January 11, 2001

Representative Kreibich:

This version is identical to the previous version, except for the order of the discussion in the analysis.

**Mark D. Kunkel
Legislative Attorney
Phone: (608) 266-0131
E-mail: mark.kunkel@legis.state.wi.us**

Kunkel, Mark

From: Larson, Rebecca A [rebecca.a.larson@xcelenergy.com]
Sent: Thursday, January 11, 2001 3:28 PM
To: 'Kunkel, Mark'
Subject: RE: Definition of "stray voltage"

Hi Mark,

I agree that we should leave out the definition.

Thanks,

Rebecca

> -----Original Message-----

> From: Kunkel, Mark [SMTP:Mark.Kunkel@legis.state.wi.us]

> Sent: Thursday, January 11, 2001 2:09 PM

> To: 'rebecca.a.larson@xcelenergy.com'

> Subject: Definition of "stray voltage"

>

> Rebecca:

>

> The discussion of stray voltage in the PSC's *order* is frankly confusing to me.

> Here is a definition that I came up with, but I don't know how accurate it

> is:

>

> "Stray voltage" means the current flow produced when an animal comes into

> contact with at least two points across which neutral-to-earth voltage is

> present.

>

> What do you think of it? As an alternative, perhaps I am being too

> literal,

> but I don't think it will work to just reference the PSC's order because

> it

> doesn't really define the term "stray voltage". Instead, it looks to me

> like it distinguishes between neutral-to-earth voltage (which I also find

> confusing) and stray voltage. As another alternative, you could not

> define

> the term at all. The bill provides for immunity if stray voltage is below

> the level of concern established by the PSC. Can't you argue that this

> reliance on the PSC requires one to accept the PSC's meaning of the term?

>

>

>

> Mark Kunkel

> Legislative Attorney

> Legislative Reference Bureau

> (608) 266-0131 mark.kunkel@legis.state.wi.us

D-NOTE

3

2001 BILL

Please give this the same priority as a budget draft.

SOON

RM NOT RUN

the sources of stray voltage on the farm

1 AN ACT to create 16.956, 20.505(1) (jm), 20.505 (1) (q), 196.64 (3) and 895.496 of
2 the statutes; relating to: stray voltage and electrical wiring assistance to
3 farmers, immunity related to stray voltage, granting rule-making authority,
4 and making an appropriation.

Analysis by the Legislative Reference Bureau

This bill requires the department of administration (DOA) to award grants and make low-interest loans to operators of dairy, beef, or swine farms for eliminating stray voltage concerns and sources or replacing electrical wiring. The funding source for this assistance is the utility public benefits fund. A farm operator is not eligible for this assistance unless the public utility that provides electric service to the farm has conducted tests to determine ~~whether stray voltage problems result from the primary distribution system or from off-farm sources that are transmitted over the primary distribution system.~~ The bill also requires DOA to promulgate rules establishing criteria and procedures for awarding the grants and making the loans, including procedures for assuring that any work is completed according to acceptable practices.

In addition, the bill creates immunity from liability for public utilities for stray voltage. Under the bill, a public utility is immune from liability for any damage caused by or resulting from stray voltage contributed by the public utility if the stray voltage is below the level of concern established by the public service commission (PSC) that is in effect at the time of measurement. In addition, the stray voltage must be determined using the PSC's principles and guidelines regarding stray

BILL

INSERT 2A

voltage screening and diagnostic procedures that are in effect at the time of measurement. Upon the request of any party to an action for damages for stray voltage, the PSC must evaluate and testify as to whether its applicable order was followed in calculating the amount of stray voltage. ~~The bill also limits damages from stray voltage to the amount of damages sustained in consequence of a public utility's willful, wanton, or reckless violation of state law. Under current law, such a public utility is liable for treble the amount of damages.~~

^ For further information see the *state* fiscal estimate, which will be printed as an appendix to this bill.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

1 SECTION 1. 16.956 of the statutes is created to read:

2 16.956 Stray voltage and electrical wiring assistance. (1) From the
3 appropriations under s. 20.505 (1) (jm) and (q), the department shall award grants
4 and make loans to operators of dairy, beef, or swine farms for eliminating potential
5 stray voltage concerns and sources, and replacing electrical wiring. A farm operator
6 is not eligible to receive an award or grant under this subsection unless the public
7 utility that provides electric service to the farm has conducted tests to determine
8 ~~whether stray voltage problems result from the primary distribution system or from~~
9 ~~off-farm sources transmitted over the primary distribution system.~~

10 (2) The department shall determine the interest rate on loans under sub. (1).
11 The interest rate shall be as low as possible but shall be sufficient to fully pay all
12 interest expenses incurred by the state in making the loans and to provide reserves
13 that are reasonably expected to be required in the judgment of the department to
14 ensure against losses arising from delinquency and default in the repayment of the
15 loans.

16 (3) The department shall promulgate rules establishing criteria and
17 procedures for awarding grants and making loans under sub. (1), including

the sources of stray voltage on the farm.

BILL

1 procedures for assuring that any work is completed in accordance with acceptable
2 practices.

3 **SECTION 2.** 20.005 (3) (schedule) of the statutes: at the appropriate place, insert
4 the following amounts for the purposes indicated:

5 2001-02 2002-03

6 **20.505 Administration, department of**

7 (1) SUPERVISION AND MANAGEMENT; LAND INFORMATION
8 BOARD

9 (q) Stray voltage and electrical wir-
10 ing assistance SEG B \$4,000,000 \$4,000,000

11 **SECTION 3.** 20.505(1) (jm) of the statutes is created to read:

12 20.505 (1) (jm) *Stray voltage and electrical wiring loan repayments.* All moneys
13 received in repayment of loans made under s. 16.956 (1) to be used for grants and
14 loans under s. 16.956 (1).

15 **SECTION 4.** 20.505 (1) (q) of the statutes is created to read:

16 20.505 (1) (q) *Stray voltage and electrical wiring assistance.* Biennially, from
17 the utility public benefits fund, the amounts in the schedule for awarding grants and
18 making loans under s. 16.956 (1).

19 **SECTION 5.** 196.64 (3) of the statutes is created to read:

20 196.64 (3) This section does not apply to damages resulting from stray voltage.

21 **SECTION 6.** 895.496 of the statutes is created to read:

22 **895.496 Liability exemption; stray voltage.** (1) In this section:

23 (a) "Farmer" and "farm premises" have the meaning given in s. 102.04 (3).

24 (b) "Public utility" has the meaning given in s. 196.01 (5) (a).

Handwritten: HOUSE 3-4

that

1 (2) A public utility is immune from liability for any damage caused by or
 2 resulting from stray voltage contributed by the public utility if ~~the~~ stray voltage is
 3 below the level of concern established by the public service commission that is in
 4 effect at the time of measurement, as determined using the principles and guidelines
 5 of the public service commission regarding stray voltage screening and diagnostic
 6 procedures that are in effect at the time of measurement. Upon request of any party
 7 to an action for damages related to stray voltage, the public service commission shall
 8 evaluate and testify as to whether the applicable order of the public service
 9 commission was followed in calculating the amount of stray voltage.

SECTION 7. Appropriation changes.

11 (1) ELECTRICAL INSPECTORS. In the schedule under section 20.005 (3) of the
 12 statutes for the appropriation to the department of commerce under section 20.143
 13 (3) (j) of the statutes, as affected by the acts of 2001, the dollar amount is increased
 14 by \$-0- for fiscal year 2001-02 and the dollar amount is increased by \$-0- for fiscal
 15 year 2002-03 to increase the authorized FTE positions for the department by 5.0
 16 GPR positions for the purpose of making electrical inspections.

SECTION 8. Initial applicability.

18 (1) STRAY VOLTAGE IMMUNITY. The treatment of sections 196.64 (3) and 895.496
 19 of the statutes first applies to actions commenced on the effective date of this
 20 subsection.

(END)

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB-1305/3dn

MDK.:.....

ej's

Representative Kreibich:

This version is identical to the previous version, except that, based on my discussion with Rebecca Larson, there are slight revisions to the last paragraph of the analysis and proposed ss. 16.956 (1) and 895.496 (2).

Mark D. Kunkel
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**2001-2002 DRAFTING INSERT
FROM THE
LEGISLATIVE REFERENCE BUREAU**

LRB-1305/3ins
MDK:.....

INSERT 2A:

Finally, current law provides that, under certain circumstances, a public utility may be liable for treble damages for injuries resulting from the wilful, wanton, or reckless acts or omissions of the public utility's directors, officers, employees, or agents. This bill provides that damages from stray voltage are not subject to this provision.

**DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU**

LRB-1305/3dn
MDK:cjs:pg

January 12, 2001

Representative Kreibich:

This version is identical to the previous version, except that, based on my discussion with Rebecca Larson, there are slight revisions to the last paragraph of the analysis and proposed ss. 16.956 (1) and 895.496 (2).

**Mark D. Kunkel
Legislative Attorney
Phone: (608) 266-0131
E-mail: mark.kunkel@legis.state.wi.us**