



# FINAL REPORT

## Stray Electric Current and Agriculture Study Committee

December 2013

### MEMBERS PRESENT:

Senator Thomas G. Courtney, Co-chairperson	Representative Peter Cownie, Co-chairperson
Senator Bill Anderson	Representative Nancy Dunkel
Senator Wally E. Horn	Representative Pat Grassley
Senator Charles Schneider	Representative Bob M. Kressig
Senator Rich Taylor	Representative Steven N. Olson

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### AUTHORIZATION AND APPOINTMENT

The Stray Electric Current and Agriculture Study Committee was established by the Legislative Council by motion on July 18, 2013. The committee's charge was to study the issues associated with claims that stray electric current or voltage is affecting dairy cattle milk production, and to work with stakeholders in considering options to address the issues and make recommendations to resolve them.



## **Stray Electric Current and Agriculture Study Committee**

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### **I. Procedural Business**

The committee met on Monday, October 28, 2013, in Room 103 of the State Capitol to hear testimony from various experts, interested parties, and stakeholders. The meeting commenced at 10:00 a.m., and adjourned at 2:26 p.m.

### **II. Stray Voltage Overview – Research Perspective**

Dr. Douglas Reinemann, Ph.D., Professor and Chair, Biological Systems Engineering, University of Wisconsin-Madison, summarized stray voltage research conducted since the early 1960s. Dr. Reinemann stated that the causes and effects of stray voltage, as well as scientifically based remedial procedures for managing it, have been extensively studied and are well understood. He described the direct effects which can be observed in dairy cows subjected to stray voltage as ranging from mild behavioral reactions to intense responses, and indicated that the severity depends on the amount of electrical current flowing through an animal's body, the body pathway or contact point through which contact is made, and the sensitivity of the individual animal. Dr. Reinemann identified graduated levels of stray voltage which have been documented in numerous studies as ranging from nonproblematic to problematic. He emphasized that animal behavior or other symptoms alone cannot be used to diagnose stray voltage problems because the effects can be produced by other causes, and that accordingly the only way to determine if stray voltage is a potential cause of the behavior is to perform electrical testing. In order to have an adverse effect, he stated that stray voltage must be occurring at a sufficiently high level and frequency. It was noted that unorthodox approaches to mitigating stray voltage which are not based on sound scientific principles regularly arise and produce a great deal of mistrust in the agricultural community.

### **III. Iowa Dairy Farm Investigations**

Dr. Patrick Gorden, DVM, Director, Food Supply Veterinary Medicine, Veterinary Diagnostic and Production Animal Medicine, Iowa State University, and Dr. Leo Timms, Ph.D., Extension Dairy Specialist and Associate Professor of Animal Sciences, Iowa State University, discussed their efforts in investigating and assessing issues relating to milking, milk quality, animal nutrition, and related health and behavioral issues on farms. It was noted that stray voltage research increased during the 1970s and 1980s, culminating in a United States Department of Agriculture meeting in 1993 that addressed testing and training procedures. They have identified stray voltage as the ultimate cause of a problem in relatively few investigations, but it is considered and ruled out early on with the farmer advised to work with their utility company and other professionals to perform accurate testing and develop mitigation strategies if a stray voltage problem is suspected. It was stated that a stray voltage problem, if it exists, can arise very suddenly due to lightning strikes, wiring becoming loose, and other causes, and that the effects may impact an entire herd or individual cows.

### **IV. Iowa Utilities Board**

Ms. Libby Jacobs, Board Chairperson, provided the perspective of the Iowa Utilities Board regarding stray voltage and legislation proposed in recent legislative sessions to address it. Ms. Jacobs stated that the board's position regarding stray voltage is neutral, and that only one



complaint relating to stray voltage has come before the board dating back to 2005. With regard to legislation proposed during the 2012 and 2013 Legislative Sessions, she identified as concerns the need to develop and implement procedures which are technically correct, ensuring that biosecurity protocols are followed to maximize safety, and the need for additional funding based on the board's expanded responsibilities. Ms. Jacobs also stressed the importance of providing the board with flexibility to develop procedures and protocols with the appropriate parties, with those established in Wisconsin being one of the models to consider.

### **V. Iowa Farm Bureau Federation**

Mr. Marty Schwager and Mr. Matt Steinfeldt, State Policy Advisors for the federation, provided the perspective of many of the federation's approximately 1,500 dairy farm members regarding stray voltage. They advocated for a cooperative, proactive, and voluntary versus complaint-based approach envisioning the various stakeholders working together to develop procedures for dairy farmers and utilities to utilize when stray voltage concerns arise. Any program developed would incorporate training for electricians, utilities, farmers, and other agricultural professionals and would include recommendations for addressing on-farm as well as off-farm electrical systems. The federation opposes specifying a standard or level of concern below which the presumption could exist that stray voltage is not significantly impacting dairy cows, citing the arbitrariness of identifying such a level and the possibility that in individual instances dairy cows and herds could conceivably be adversely impacted at levels below the threshold.

### **VI. Iowa State Dairy Association**

Ms. Jessica Bloomberg, Industry Relations Manager for the Iowa State Dairy Association, accompanied by three association board members, indicated agreement with the federation's remarks, adding that in the vast majority of cases stray voltage issues have been satisfactorily resolved between the dairy farmer and the utility without the need for legislation. Mr. Larry Shover, a dairy farmer and one of the board members in attendance, commented that he has a good relationship with his rural electric cooperative and has worked effectively with the cooperative to resolve problems. He emphasized the importance of education and training regarding stray voltage awareness and testing procedures.

### **VII. Iowa Association For Justice**

Ms. Lisa Davis-Cook, Director of Government Affairs for the association, stated that a very small number of cases involving stray voltage have been litigated, and she reiterated the opposition of previous presenters to specifying stray voltage standards. Mr. Bill Wimmer of Wasker, Dorr, Wimmer, and Marcouiller, Des Moines, acknowledged that standards relating to a wide variety of conditions and requirements exist virtually everywhere, but do not necessarily constitute an absolute defense barring a claim for damages. By establishing a stray voltage standard, he maintained that such an absolute defense would be created, which is problematic given that stray voltage can impact dairy cows to varying extents at varying levels which could fall below the specified standard. Mr. Wimmer did indicate support for portions of legislation proposed during the 2013 Legislative Session which would facilitate entry by a utility onto a dairy farm under specified circumstances and would require adherence to biosecurity protocols.



### **VIII. Stray Voltage Standards – Wisconsin Perspective**

Mr. Stuart Mondschein of Wheeler, Van Sickle, and Anderson, S.C., Madison, Wisconsin, summarized the development of the stray voltage approach taken by the state of Wisconsin, and the establishment of stray voltage standards pursuant to administrative rule. He indicated that he has worked with rural electric cooperatives involved in stray voltage litigation in both Wisconsin and Iowa. Mr. Mondschein stated that courts in Wisconsin have held that the existence of a standard does not bar a lawsuit and that such lawsuits have continued to occur there after the standard was specified. He opined that standards actually facilitate cooperation between the respective parties involved in a stray voltage dispute by providing well-defined procedures and protocols.

### **IX. Economic Development Impact**

Mr. Kirk Trede, Chief Executive Officer, Eastern Iowa Light and Power Cooperative, noted that Iowa rural electric cooperatives recognize the economic value of the state's dairy industry and are working to further the development of that industry. He expressed the viewpoint that stray voltage standards lead to an improved level of certainty and understanding, and noted that states with the fastest growing dairy production industries have developed stray voltage standards in some form.

### **X. Stray Voltage Litigation**

Mr. Bob Swindell, General Manager and Chief Executive Officer, Access Energy Cooperative, related a six-year-long stray voltage litigation process which involved a substantial expenditure of time, energy, and money on the part of the rural electric cooperative and its members. He stated that standards would have assisted not only the cooperative, but also the dairy farmer involved, given his observation that the farmer was receiving misleading and ineffective information regarding stray voltage mitigation strategies.

### **XI. Stray Voltage Testing and Detection**

Mr. Tony Harvey, Senior Agriculture Representative, Alliant Energy, discussed stray voltage testing and detection procedures he employs in conducting approximately 20 to 30 new customer-initiated investigations annually in an area covering portions of Wisconsin, Iowa, and Minnesota. Mr. Harvey stated that stray voltage concerns most commonly result from a combination of utility and on-farm contributions, and that his utility's goal is to provide a quality utility system neutral path for current so that less primary neutral current flows through the farm grounding system to return to its source. He indicated that although only one of the three states (Wisconsin) has standards for utilities to take action related to stray voltage, Alliant has chosen to apply those standards in Iowa and Minnesota as well. He characterized the standard adopted in Wisconsin as a conservative, pre-injury level which facilitates a systematic analysis that can be duplicated and results in comparable information which can be provided to the utility and the customer. Mr. Harvey additionally described a multiphase investigative process, and said that action will be taken on the part of the utility to improve its system if it is found to contribute one milliamp or one-half volt or more to animal contact voltage.



## **XII. Dairy Farmer Perspective**

Mr. Paul Wells, a dairy farmer in Bloomfield, Iowa, provided a perspective on stray voltage from the standpoint of a dairy producer. Mr. Wells stated that stray voltage can cause low milk production, impact milk quality, and contribute to reproduction issues, all of which have financial ramifications for the farmer. Accordingly, he indicated he would be motivated to resolve a stray voltage issue as quickly as possible and would welcome the involvement of experts who could provide assistance. He supports standards as providing a guideline to measure against, and a procedure to follow to achieve resolution.

## **XIII. Stray Voltage Legislative Parameters**

Mr. Dennis Puckett of Sullivan and Ward, P.C., Des Moines, highlighted statements made in previous presentations as supporting the establishment of stray voltage standards. He questioned the feasibility of enforcing a “voluntary” approach, and maintained that litigation can proceed with standards in place. Mr. Puckett emphasized that stray voltage legislation, rather than promoting liability protection, will assist both parties in a dispute in achieving an amicable resolution, and that such legislation needs to incorporate the three primary elements of notice, access, and standardized testing.

## **XIV. Committee Discussion**

Co-chairperson Courtney observed that the discussion of whether to specify stray voltage standards does not entail a “right” versus “wrong” perspective. The stakeholders were encouraged to continue their dialogue in an effort to achieve a workable consensus solution. The committee adopted a motion by Co-chairperson Cownie that the committee review this Final Report when it becomes available and submit it, if approved, to the General Assembly.

## **XV. Materials Filed With the Legislative Services Agency**

The following materials were distributed at or in connection with the meeting and are filed with the Legislative Services Agency. The materials may be accessed from the link on the committee’s Internet site: <https://www.legis.iowa.gov/Schedules/committeeDocs.aspx?GA=85&CID=930>

1. Stray Voltage: The Research Perspective – Douglas Reinemann, Ph.D., University of Wisconsin-Madison
2. Solution to Minimizing Stray Voltage – Iowa Farm Bureau Federation
3. Comments for the State of Iowa Stray Electric Current and Agriculture Study Committee – Stuart Mondschein, Wheeler, Van Sickle, and Anderson, S.C.
4. Letter of Support – Iowa Area Development Group
5. Stray Voltage Testing and Detection – Tony Harvey, Alliant Energy
6. Statement in Support of Iowa’s Rural Electric Cooperatives – Iowa Association of Business and Industry (written testimony)
7. Statement in Support of Iowa’s Rural Electric Cooperatives and Their Legislative Efforts (written testimony)
8. Stray Voltage State Regulatory Comparison Chart (written testimony)
9. Resolution Letter – Iowa Utilities Board (requested at meeting and subsequently submitted)