

Policy: #3360 – Neutral-To-Earth Potential (Stray Voltage)

SCOPE OF POLICY: Customers

RESPONSIBILITY: Management, Employees

I. Policy: Elkhorn Rural Public Power District (ERPPD) will investigate a customer's request with regard to Neutral-To-Earth Potential (N/EP) also known as stray voltage.

II. Procedure

A. ERPPD provides electric energy and service to its customers utilizing a multi-grounded, three-phase, wye connected distribution system in accordance with applicable codes and standard utility practice. Because the multi-grounded neutral carries current, it will have voltage (potential) on it with respect to earth. Neutral-To-Earth Potential (N/EP) is the voltage measured between earth and the neutral conductor in either the customer's or ERPPD's electrical distribution system. Customers having concerns with N/EP levels may contact ERPPD who will provide technical assistance. N/EP level testing at or below 0.5 volts, at the animal contact point, will be considered an "acceptable level" of current. N/EP levels testing above 0.5 volts will be considered an "undesirable level" and ERPPD will take appropriate action to reduce any distribution system contributions to the current.

B. When a complaint of N/EP is received, ERPPD will make tests in cooperation with the customer's electrician or equipment technician. If these tests indicate N/EP levels exceeding the undesirable levels are on ERPPD's system, ERPPD will correct identifiable deficiencies on its system. If these tests indicate N/EP levels are at or below the acceptable level, ERPPD will take no action to the distribution system. ERPPD will review the results of the investigations with the customer and may discuss options for reducing on-farm contributions.

If the customer's electric installation is identified as causing the undesirable level, ERPPD may make recommendations to the customer and the customer's electrician on methods to resolve the problem. ERPPD assumes no responsibility for the degree of correction made by these recommendations.

C. If the N/EP remains at undesirable levels after all identifiable wiring and grounding improvements have been made by ERPPD and the customer, the customer shall be advised that special equipment may be required to reduce the N/EP level. If the customer desires to have a neutral isolation device installed, the device will be installed by ERPPD for a 90-day evaluation test period. The conditions of installation, evaluation and removal shall be set forth in the "N/EP Evaluation Agreement" and completed by ERPPD and the customer before the device is installed for the evaluation test period.

Implementation: 8/14/1990
Revised: 8/11/1992; 10/12/2010; 8/13/2024
Reviewed: 9/11/00

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D. If the neutral isolation device is deemed successful by ERPPD after the 90-day evaluation, the customer may agree to keep the device on their service, If the customer agrees to keep the device, Exhibit B of the N/EP Evaluation Agreement will be completed.

ELKHORN RURAL PUBLIC POWER ERPPD

N/EP EVALUATION AGREEMENT

This agreement made and entered into this _____ day of _____, 20___, between _____ hereinafter referred to as “Customer”, and the Elkhorn Rural Public Power ERPPD, hereinafter referred to as “ERPPD”.

Whereas, the Customer feels that the Neutral-to-Earth (N/EP) remains at undesirable levels after all identifiable improvements have been made on ERPPD’s and the Customer’s respective electrical wiring and grounding systems, and

Whereas, ERPPD agrees to provide and install the neutral isolation device at its main service connection to the Customer’s electrical system for a 90 day test period.

Now, therefore, the parties agree as follows:

1. That a neutral isolation device will be installed by ERPPD for a test period of 90 days from the date of installation which is _____, 20___. ERPPD agrees to provide and install the neutral isolation device at its main service connection to the Customer’s electrical system for the test period.
2. Customers agree to keep all of their wiring equipment and motors in good repair, and to have a qualified electrician perform routine maintenance as required from time to time on this electrical equipment. If the neutral isolation device is employed for more than a year, the customer agrees to allow ERPPD employees access for an annual inspection and testing of the device.
3. Customer agrees to notify ERPPD immediately if he or she suspects that the neutral isolation device is not satisfactorily reducing the neutral to earth voltage.
4. This agreement shall continue until terminated by either party after giving written notice if it should be determined that the device is unnecessary, or another means of neutral to earth voltage reduction is found.
5. Upon termination of the agreement, ERPPD will remove the isolation device and restore the neutral condition to the standard position.
6. In consideration of the installation of the neutral isolation device, Customer hereby releases and forever discharges ERPPD from all actions, suits, damages, claims and liabilities whatsoever of any nature, both in law and in equity in connection with the usage of the neutral isolation device.

7. Customer agrees to list on Exhibit "A" attached hereto, conditions that presently exist that would indicate the need for a neutral isolation device to be installed. Customer also agrees to complete on Exhibit "B" the report shown on Exhibit "B" at the end of the evaluation test period, giving a valuation of the effectiveness of the neutral isolation device and showing whether the conditions stated above have "improved" or "not improved".

This agreement executed in duplicate this _____ day of _____, 20__.

ELKHORN RURAL PUBLIC POWER DISTRICT

By _____
Manager

Customer

EXHIBIT "A"

Complete This Portion At Time Device Is Installed

List the conditions that presently exist that would indicate the need for a Neutral Isolation Device to be installed:

1. _____
2. _____
3. _____
4. _____
5. _____

Evaluation Date: _____

EXHIBIT "B"

Complete This Portion At The End Of Evaluation Test Period

Please give your (Customer) evaluation of the effectiveness of the Neutral Isolation Device for each of the conditions stated above ("Improved" or "Not Improved").

1. _____
2. _____
3. _____
4. _____
5. _____

Do you (Customer) determine that the use of the Neutral Isolation Device is beneficial?

_____ Yes _____ No

Customer Signature

Date