

From: "Edwin C Jones MD PhD"
To: *IEEE Power & Energy Society* - Transmission and Distribution Committee
Date: 16-Sep-2011 @ 20:47:50
Subject: Future NEC Suggestion

Dear Dr. S. J. Ranade:

I'm a doctorate in (superconductivity) physics with a concern in how our U.S. homes are currently connected to the local utility systems. With the recent advent of copper thefts from many local utility distribution systems, homes can no longer be assured of a grounded neutral wire entering their home at their power entry. In the event an electrician performs service to their home with a breaker disconnected he/she could be potentially electrocuted because the neutral from the local utility is floating away from the ground potential. Has your committee considered submitting to the National Electric Code that all new homes have breakers that disconnect all three wires from the utility as a future requirement? This requirement would protect both the high voltage line workers as well as any indwelling electricians from potential electrocutions. Residents having home power plants already fall under this requirement. Due to the recent increase in copper thefts from our utility infrastructure, the neutral lines cannot be assured to be adequately grounded. In my opinion, the National Electric Code should be modified to protect both the consumer as well as the utility worker. Thank you for your consideration in this matter.

Edwin C. Jones, MD PhD

CC: Dr. W. A. Chisholm and Dr. John McDaniel

From: "Dr. William Chisholm"
To: "Dr. Edwin C. Jones"; "Dr. S. J. Ranade"
CC: "Dr. W. A. Chisholm"; "Dr. John McDaniel"
Date: 19-Sep-2011 @ 18:00
Subject: RE: Future NEC Suggestion

Dear Dr. Jones, Electrical main breaker panels are presently equipped with a bonding screw that allows the neutral isolation you describe. When a neutral-to-earth isolation device is installed at a farm, for example, to mitigate stray voltage the device will become effective when the bonding screw is removed. The neutral-to-earth voltage measured when the bonding screw is removed under normal operating conditions is typically less than 10 V rms and thus not of concern for electrocution, even though the source impedance is low (on the order of 2 ohms). The Distribution Subcommittee Working Group on Voltages at Publicly and Privately Accessible Locations is one of the many IEEE groups dealing with the reality of copper theft and other open-neutral fault conditions as well as "stray" or "tingle" voltages resulting from normal power system operation.

Yours truly, William A. (Bill) Chisholm <Vice Chair, T&D Committee>