

FORM FOR PROPOSAL FOR 2014 NATIONAL ELECTRICAL CODE®

INSTRUCTIONS — PLEASE READ CAREFULLY

Type or print **legibly** in **black ink**. Use a separate copy for each proposal. Limit each proposal to a **SINGLE** section. All proposals **must be received by NFPA by 5 p.m., EST, Friday, November 4, 2011**, to be considered for the 2014 National Electrical Code. Proposals received after 5:00 p.m., EST, Friday, November 4, 2011, will be returned to the submitter. If supplementary material (photographs, diagrams, reports, etc.) is included, you may be required to submit sufficient copies for all members and alternates of the technical committee.

For technical assistance, please call NFPA at 1-800-344-3555.

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Please indicate organization represented (if any) PV INDUSTRY FORUM

1. Section/Paragraph 690.80

2. Proposal Recommends (check one): new text revised text deleted text

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

Revise as shown below and add the Informational Note:

690.80 General

Solar photovoltaic systems with a maximum system voltage over 600 volts but not exceeding 1000 volts dc shall comply with the requirements in Article 690 for systems operating at 600 volts or less where the following conditions are met:

(a) All modules, conductors, and equipment assemblies shall be listed and identified for use at the applicable voltage.

(b) Doors and other access points that would provide unqualified persons access to energized dc parts shall be locked.

Informational Note: These requirements will generally apply to the calculations of the maximum system voltage and the sizing and application of overcurrent devices to circuits and equipment.

Systems with a maximum system voltage over 1000 volts dc shall comply with all the applicable provisions of the preceding sections of this article, and shall comply with Article 490 and other requirements applicable to installations rated over 600 volts.

4. **Statement of Problem and Substantiation for Proposal:** (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Proposal, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

PV systems rated for 1000 volts dc are common worldwide and an increasing number are being installed in the U.S., categorized rightly or wrongly as “behind-the-fence” installations. Modules, inverters and other BOS equipment certified internationally are mostly being used in these installations. However, domestic manufacturers are beginning to list 1000 volt products to UL Standards 1741 and UL 1703. Additionally, significant efforts are being made in the U.S. to harmonize these standards with equivalent IEC standards, which define low voltage at 1000V.

Meanwhile, the NEC is a source of confusion and ambiguity in its treatment of 1000 volt dc PV systems. Reference to “Article 490 and other requirements applicable to installations rated over 600 volts” is well-intentioned but some of these requirements are clearly written in the context of equipment and switchgear operating at voltages much greater than 1000V and with fault currents far greater than available from PV systems. Overcurrent protection requirements for MV equipment is also overly relaxed relative to the requirements in 690 and should be avoided. Some requirements are well founded and are addressed in the conditions above.

5. Copyright Assignment

- (a) I am the author of the text or other material (such as illustrations, graphs) proposed in the Proposal.
- (b) Some or all of the text or other material proposed in this Proposal was not authored by me. Its source is as follows: (please identify which material and provide complete information on its source)

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