# PV INDUSTRY FORUM PROPOSALS FOR THE 2014 National Electrical Code

John C. Wiles Southwest Technology Development Institute New Mexico State University P.O. Box 30001/MSC 3 SOLAR Las Cruces, New Mexico 88003

http://www.nmsu.edu/~tdi >>PV >> Codes and Standards

e-mail: jwiles@nmsu.edu Phone: (575) 646-6105 Fax: (575) 646-3841



Southwest Technology Development Institute

## **55 PROPOSALS BEING SUBMITTED**

27-28 October 2011

240.21: Protect current-limited sources properly

250.121: Combined EGC and GEC permitted for inverter grounding

310.15(B)(3): Correct ambient temperatures

690.1(A)Figure: Eliminate the blocking diodes

690.2/705.2: Utility-interactive Inverter, Stand-alone Inverter, Multimode Inverter

690.2: DC Combiner, Inverter input circuit, Inverter output circuit

690.4: Grammar, DC combiners and DC-to-DC converters listed



690.5: Larger EGCs no help-no longer allowed

690.6(D): Ground fault protection no longer permitted on AC PV Modules 690.7(C): 1000 V systems—treat like 600 V system for voltage and currents 690.8(B)(2): Add terminal temperature estimation to ampacity calculations 690.9(A): Protect current limited sources (modules and inverters) properly 690.9(C): Correct standard overcurrent ratings 690.9(E): Ungrounded systems require two overcurrent devices per string 690.10(E): Corrected to match new definitions



690.13 EX2: Separate the maintenance disconnect

690.14: Substantial Revisions-ac and dc separated

690.15: Disconnect on DC Combiner output

690.16: Disco Close to fuse, 690.17 ref, IN. for inverters

690.17EX2: Power operated disconnects allowed

690.31(A) FPN: Barriers could be used to meet Code

690.31(B): Green markings permitted on array EGC-permits USE-2



690.31(E): Added "dc" for clarity

690.31(F): Code reference corrected

690.35(D): Added direct buried conductors

690.46: Permits solid equipment-grounding conductors in raceways 690.47(B): Permits ac equipment grounding to be used for dc equipment 690.51: Delete module marking requirements-covered by UL 1703 690.52: Delete AC Module marking requirements-covered by UL 1741

690.53(4): Clarifies system current marking requirements



Southwest Technology Development Institute

690.66: DC-to-DC Power Converters-Install per instructions, not a module output

690.71(H): Locations for disconnects and overcurrent for energy storage

690.74(A): Correct Code reference.

690.80: Provides guidance on 1000 volt systems

705.3: Art 705 determines the requirements of Utility-interactive inverters

705.12(A): Specific requirements of supply side connections



#### LAST PAGE

705.12(D): Extensive revision to bring into 21st century

705.22(6): Delete locking disconnect requirement

705.60(A): Relates inverter input current to array output current

705.60(B): IN describing the ac output of a U-I inverter.

705.95(A): Neutral conductor ampacity

Proposals due NFPA 4 Nov 2011>>> CMP Meets Jan 9, 2012 Report of Proposals July 13, 2012 >>> Comments due October 17, 2012 Report of Comments March 22, 2013>>> CMP Meets November 28, 2012 2014 NEC released September 2013



Southwest Technology Development Institute