



Canadian Standards Association
Mississauga, Ontario
To the Part I Committee

Subject No. 3106

Chair: F.L. Kaempffer

Date: September 28, 2004

Title: Changes for Distributed Generators, Section 84

Submitted by: R. Leduc, Alberta Municipal Affairs, 16th Floor, Commerce Place, Edmonton, Alberta, Tel: (780) 415-0481, Fax: (780) 427-8686 on January 27, 2003.

Proposal:

See attached table with proposals for change to specified Rules in Sections 84.

Note: The table includes a proposed change to the definition of “supply authority” in Section 0 of the Code and a proposed change to Rule 50-004 of Section 50 of the Code to. They are shown in the table as information and are being submitted as separate requests for change.

Reasons for Request: See attached table for rationale for each proposed change.

Supporting Information:

BACKGROUND

On November 30, 2001, the Alberta Electrical Safety Codes Council struck a task force to review and identify issues within the CE Code, Part I regarding obstacles to micro-power installations and make recommendations to the Electrical Technical Council accordingly.

The task force consisted of the following participants:

Name	Representing	Company Affiliation
Mike Gardener (Chair)	ETC – Major Municipalities	City of Calgary Electrical Inspections
Al Dahlen	ETC – Electric Utility Industry	AGD Innovations Ltd.
Alan Mak	Utilities	Epcor
Bert Dreyer	Utilities	Enmax Power Corp.
Blair Howell	Utilities	Atco Electric Ltd
John Johnson	Distributed Generation	Soltek Solar Energy Ltd.
Gary Boswell	ETC – Certification Bodies	Canadian Standards Association
Gordon Howell	Solar PV Industry	Howell-Mayhew Engineering Inc.
Guenther Reinhardt	Safety Codes Officers	The Inspections Group Inc.

Matt Romanow	Fuel Cell Micro-generation	Global Thermoelectric
Stan Misyk	Safety Codes Officers	The Inspections Group Inc.
Rod Bigsby	Utilities	Epcor
Simon Knight	Distributed Generation	Climate Change Central
Dan Niven	Regulator	Alberta Municipal Affairs
René Leduc	Regulator	Alberta Municipal Affairs

On December 11, 2002, the task force completed its work depicting it in table format with column headings:

CURRENT CODE RULE	PROPOSED CHANGES	RATIONALE
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On January 23, 2003, the task force presented its recommendations to the Alberta Electrical Safety Codes Council for endorsement and submission to the CSA as a “Request for Change” to CE Code, Part I. In reviewing the Task Force recommendations, the Electrical Council took into consideration a number of recommendations from the National MicoPower Connect Task force. The Electrical Safety Codes Council approved the following proposed changes for submission to the CSA CE Code, Part I.

Chair’s Comments: A BC Hydro expert in the interconnection of distributed generators to the grid has examined the submission and made comments for consideration by marking up and adding to the original submission document. This document is marked "BC Hydro Comments" under the title.

For the first round, please limit your comments in the reply form to only three categories, namely, (a) "Agree with submission", (b) "Agree with the submission with comments" and (e) "Disagree for the reasons stated".

Subcommittee Deliberations (1st Round): Six members responded. Two agreed with the submission. Two agreed with the submission with comments stating that they were agreeing with the BC Hydro comments. One member provided a number of suggestions. These were to provide definitions for “generator”, “retailer” and “electric power production source”; to change under 84-008, Appendix B “utility” to “supply authority”; for 84-016, define “cease to energize” as an electronic medium may still have flow through be it ever so minute; to try under 84-024 (1)(a) “Have a provision to permit being energized on both sides and ; to revise 84-028 to read “the grounding conductor at the service entrance shall be permitted to serve as the grounding means for the electric power production source...”. One member disagreed citing a concern that the deletion of clause (1)(c) will impact worker safety. To quote the member he says “Section 84 is for all different kinds of generations, from synchronous to induction to inverter type. For small inverter type generation, it is acceptable not to have contacts verifiable by direct visible means (Clause (1)(c) of Section 84.026), as the inverter type generation shall be equipped with anti-islanding functions that should stop the generator from generating power. However, for synchronous and possibly for induction type generators, the situation is different. There is no guarantee that the generators will stop generating when the main breaker from the utility side is open. Without visible means to confirm the switch is definitely open, it may create difficulty for staff to confirm if the facility that the staff in working on is actually isolated from the generation or not. Thus it defeats the purpose of installing the switch and defeats the purpose of having provision on the switch of being locked in the open position as require in clause (1)(d) of Section 84-026. By deleting the clause (1)(c), we may delete one layer of safety net for the electrical staff working on the energized circuit. To be fair to the inverter type generators, it is better to modify

Section 84-026 Clause (1)(c) with a note that the inverter generators with certified and proven anti-islanding protection function can be exempted from having a switch with contact operation verifiable by direct means.”

In addition to the balloted comments, a letter was received from the submitter on behalf of the Alberta Electrical Technical Council (ETC) expressing concerns from the electrical utility sector. To quote the concern: “At an ETC meeting, a representative of electrical utility workers presented concerns with the proposed removal of paragraph (c) of Rule 84-026, contact operation verifiable by direct visible means. Rather than complete removal of this paragraph, the utility sector suggested that perhaps the requirement could be retained with certain exemptions based on size and /or characteristics of the interconnected installation.”

Chair’s Comments (2nd Round): We do not have a consensus after the first round. Taking into consideration all of the comments, here are some suggestions based on my utility experience and the way I see it. The heart of the issue is the safety of the worker and what level of control any one party has over the interconnection network and the production sources. If one party operates maintains and operates both a wires system and production sources connected to it, then they have control over those items and can implement operating procedures and equipment requirements to meet their safety needs accordingly. When a production source maintained and owned by a second party is inter-connected to a wires system and production sources maintained and operated by the first party, the scenario changes. One party no longer has absolute control over all of the inter-connected production sources. Hence, the equipment interface between the two parties may need to be handled in a different manner in order to maintain acceptable safety. As such, it should be recognized that a supply authority may own, maintain and operate production sources in addition to being a wires company. Also, Sub-rule 84-26 (1)(c) should be retained with a rider that says “if required by the supply authority”. Rule 84-002 provides the utility the option to specify and approve the direct visible means. Taking into consideration the main driving force behind the proposed changes, namely, micro-power installations and solid state inverter technology, as well as the need to ensure interconnections that are designed with worker and public safety in mind, I am proposing a revised document that will hopefully address all interests and concerns. I have gone back to the original submission and changed text in both the “proposed change” and “rationale” fields. These changes are indicated by underlined text in a document with the sub-heading “Chair’s Editorial Version”. In your responses, please refer to this document only.

Subcommittee Deliberations (second round): Four subcommittee members responded, all in favour with the Chair’s second round editorial version, one with comments. The comment made is that Appendix B line 84-002, first sentence should be reworded to read as follows to add clarity given that power production sources may be owned by supply authorities or consumers: “The consumer electric power generator owner should consult with the Supply Authority before planning an interconnection”. This adds clarity to Rule 84-0002 (1). The Chair agrees and declares a consensus.

Subcommittee Recommendation: To accept the Micro-Power Generation Task Force Recommendations as modified by the Section 84 Subcommittee in the form of a document entitled “ Section 84 Proposed Re-Write Based on Micro-Power Generation Task Force Recommendations” for both Section 84 and Section 0. The Section 50 subcommittee is requested to review the recommendation for Rule 50-004.