CLEAN ENERGY COUNCIL
ACCREDITED
INSTALLER

TECH BULLETIN

04/05/2022

Important changes in the requirements for PV d.c. cabling.

AS/NZS 5033:2021, Installation and safety requirements for photovoltaic (PV) arrays was published on the **19 November 2021** by Standards Australia's Technical Committee EL-042.

This Standard is currently mandatory in New South Wales and becomes **mandatory** in all other States and Territories on **19 May 2022.**

In rewriting the standard, the Committee assessed different requirements around the world against Australian conditions, identified achievable safety outcomes, and determined several different solutions that industry can choose to best suit their installations.

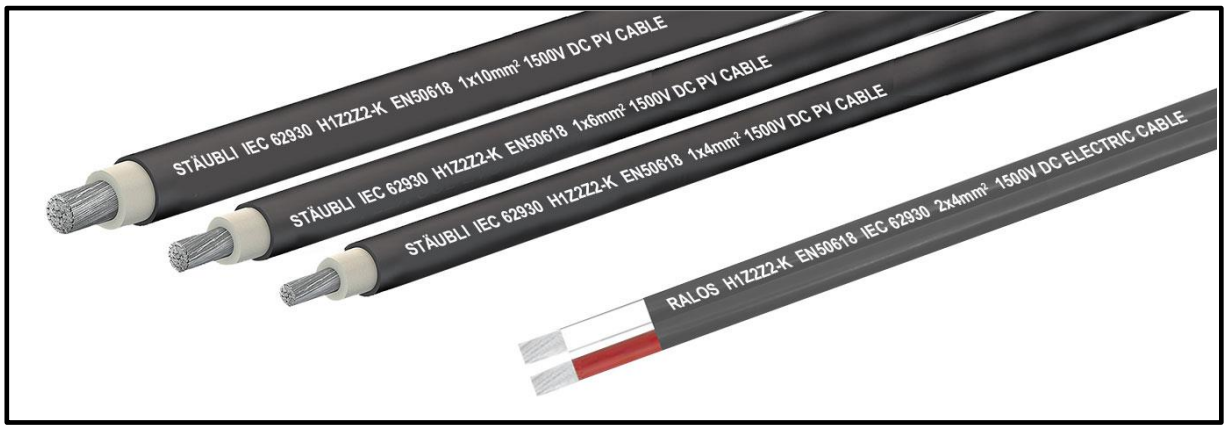

Image courtesy of DKSH.

PHONE: +61 3 9929 4141
FAX: +61 3 9929 4101
ACCREDITATION@CLEANENERGYCOUNCIL.ORG.AU

LEVEL 15, 222 EXHIBITION STREET, MELBOURNE, VIC 3000, AUSTRALIA

CLEANENERGYCOUNCIL.ORG.AU

ABN: 84 127 102 443

One of the new changes adopted in the revised standard is the selection of d.c cables.

AS/NZS 5033:2021 clause 4.4.2.1(b), states that the d.c cables must conform to IEC 62930 *where not installed underground.*

PV d.c. cables to IEC 62930

PV d.c cables must be specified for use in Photovoltaic (PV) systems, and in particular those for installation with a nominal d.c voltage of up to 1.5kV between conductors as well as between conductor and earth, and not exceeding 1800V.

IEC 62930 requires cables to be low smoke zero halogen and be flexible tin-coated copper conductors with a single core and cross-linked insulation and sheath. Cables are required to be tested at a voltage of 11kV AC 50Hz and have an operating temperature range of -40oC to +90oC.

This new IEC 62930 requirement supersedes the previous TÜV approved 2PfG 1169 ***PV1-F*** cable meaning that **some cables you have in stock may not comply** with the new IEC 62930 requirement.

PV d.c. cables installed underground

Clause 4.4.2.5 in AS/NZS 5033:2021 states:

- PV cables according to only IEC 62930 **shall not be installed underground.**
- PV d.c. cables that are installed underground **shall conform to a relevant standard governing underground cables.**

The only standard that we can find to be relevant is AS/NZS 3000:2018 Clause 3.11.2 which states.

Underground cables shall be—
(a) of a type specified in Column 1 of Table 3.5; and
(b) installed in accordance with a category specified in Columns 2 to 9 of Table 3.5.

The CEC and Master Electricians have been investigating these new requirements and have also sought clarification and additional information from manufacturers, wholesalers and industry experts.

At the time of writing this bulletin we have not been able to determine:

- alignment between existing PV1-F cables and IEC 62930
- a specific manufacturing standard for underground PV d.c. cables.

Designers and Installers are advised to seek advice from their preferred supplier on:

- whether existing stock of PV1-F cable meets the requirements of IEC 62930 and;
- specific cable types suitable for d.c underground wiring applications.