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Appeal Against Interpretation of "Who may issue a Certificate of Compliance for a direct current electrical installation"

Date: 21 May 2025

To: The Chief Inspector

C/o: The Provincial Executive Manager

Department of Employment and Labour

Pretoria

Attention: Chief Inspector,

DISPUTE I.T.O. THE ELECTRICAL INSTALLATION REGULATIONS 2009 (EIR); REGULATION 10 AND SECTION 35 OF THE OCCUPATIONAL HEALTH AND SAFETY ACT.

Background

On March 6, 2025, the Department of Employment and Labour (DoEL) issued an interpretation regarding who is authorised to issue a Certificate of Compliance (CoC) for direct current (DC) electrical installations. This interpretation has significant implications for the safety of human life and premises equipped with photovoltaic (PV) systems. The interpretation stemmed from a dispute lodged by Mr. Carel Ballack against the Electrical Contractors Association of South Africa (ECA(SA))'s interpretation regarding single-phase testers and DC installations. However, the dispute process was not followed correctly, as ECA(SA) was neither party to the discussions nor adequately consulted.

Grounds for Appeal

We acknowledge that diverse interpretations and opinions regarding laws, regulations, and standards are inevitable. However, we firmly believe that the DoEL's interpretation fails to provide a definitive resolution and significantly jeopardises the safety of electrical installations. Below is a point-by-point commentary on the interpretation released by the DoEL, with additional arguments to highlight the need for clarity and alignment with international and industry standards.

- 1. The purpose of this communication is to address the different interpretations of who may issues a certificate of compliance for direct current electrical installation.*

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While we recognise the existence of various viewpoints, we cannot agree that the DoEL's interpretation reflects the correct intention of the regulations concerning individuals authorised to issue CoCs for DC installations. The ambiguity in the current interpretation risks enabling unqualified individuals to certify complex and high-risk DC systems, undermining safety and regulatory compliance.

2. *The SANS 10142-1: Annex M does not include direct current (DC) installations under a single phase installation. This annex is not in line with the electrical Installation Regulations in that it does not refer to the point of control, but to the whole electrical installation.*

While we agree that SANS 10142-1: Annex M did not include DC installations under a single-phase installation for the Electrical Tester of Single Phase (ETSP). However, Annex M historically covered the entire electrical installation, from the point of control to the point of consumption (as per the definition of "electrical installation" in the Electrical Installation Regulations (EIR) 2009). This interpretation had been accepted for over thirty years without dispute.

Critically, Annex M has been removed from SANS 10142-1: 2024 Edition 3.2, rendering it irrelevant to the current interpretation. Furthermore, SANS standards, as informative annexes, lack the legal authority to interpret or supersede the requirements of the EIR. This removal eliminates any basis for relying on Annex M, and the DoEL's interpretation fails to account for this change, causing confusion in the industry.

3. *For this document to be in line with the regulations, it should refer to the point of control.*

We disagree, as electrical installations may have multiple points of control (POC)s and points of supply (POS). The assumption that the "point of supply" refers solely to traditional electricity sources (e.g., Eskom or municipal supply) is a misconception. The EIR 2009 defines an electrical installation as encompassing any supply type or voltage level, including AC, DC, batteries, transformers, and generators, from the point of control to the point of consumption, excluding only the supplier's equipment or specific exemptions (e.g., control circuits $\leq 50V$, installed as a unit).

The integration of PV systems, as outlined in **SANS 60364-7-712**, confirms that PV installations are part of the electrical installation, starting from the PV modules to the user installation or utility supply point. This standard requires competent persons to verify PV systems, as specified in **IEC 62446** up to 1,500V. South Africa, as a signatory to the IEC framework, is obliged to align with these globally recognised safety benchmarks. Allowing ETSPs, who lack training in DC systems, PV string configurations, and insulation monitoring, to issue CoCs risks non-conformance with these standards and compromises safety.

Definitions from the Electrical Installation Regulation (EIR) 2009

'supplier', in relation to a particular electrical installation, means any person who supplies or contracts or agrees to supply electricity to that electrical installation; and

'point of consumption' means any point of outlet or the supply terminals of machinery which is not connected to a point of outlet and which converts electrical energy to another form of energy: Provided that in the case of machinery which has been installed for any specific purpose as a complete unit, the point of consumption shall be the supply terminals which have been provided on the unit of machinery for that purpose;

'point of control' means the point at which an electrical installation on or in any premises can be switched off by a user or lessor from the electricity supplied from the point of supply, or the point at which a particular part of an electrical installation on or in any premises can be switched off where different users occupy different portions of such premises;

'point of supply' means the point at which electricity is supplied to any premises by a supplier;

'electrical installation' means any machinery, in or on any premises, used for the transmission of electricity from a point of control to a point of consumption anywhere on the premises, including any article forming part of such an electrical installation irrespective of whether or not it is part of the electrical circuit, but excluding:

- (a) any machinery of the supplier related to the supply of electricity on the premises;*
- (b) any machinery which transmits electrical energy in communication, control circuits, television or radio circuits;*
- (c) an electrical installation on a vehicle, vessel, train or aircraft; and*
- (d) control circuits of 50V or less between different parts of machinery or system components, forming a unit, that are separately installed and derived from an independent source or an isolating transformer;*

SANS 60364-7-712 Normative references for inspecting, testing, commissioning of installations.

712.2 Normative references The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61557-8:2014, Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 8: Insulation monitoring devices for IT systems

IEC 62446-1, Photovoltaic (PV) systems – Requirements for testing, documentation and maintenance – Part 1: Grid connected systems – Documentation, commissioning tests and inspection

712.6 Inspection and testing IEC 62446-1 gives requirements for system documentation, commissioning inspection which are additional to the requirements of this document.

4. *Annex M is included in the standard as an informative annex. This means that Annex M cannot be enforced, but it causes some confusion in the industry.*

As an informative annex, Annex M was never enforceable. Its removal from SANS 10142-1: 2024 Edition 3.2 further nullifies its relevance, as discussed in point 2. The DoEL's reliance on outdated or non-binding standards exacerbates misinterpretations and undermines regulatory clarity.

5. *The following definitions in the Electrical Installation regulations need to be considered:*

a) An electrical tester for single phase tester is defined as "means a person who has been registered as an electrical tester for single phase in terms of regulation 11(2) for the verification and certification of

the construction, testing and inspection of electrical installations supplied by a single-phase electricity supply at the point of control, excluding specialised electrical installations”.

The term “phase” clearly refers to alternating current (AC), limiting ETSPs’ scope to AC systems. The registered scope of work and training curriculum for ETSPs (as per the Quality Council for Trades and Occupations (QCTO) or legacy unit standards) do not include inspection, testing, or risk assessment of DC systems, battery storage technologies, or PV arrays. In contrast, Installation Electricians (IEs) are trained and registered for “any electrical installation,” including alternative energy systems and DC configurations. Moreover, an individual with only five years of experience in the industry, who has only completed the single-phase unit standards, can register as an ETSP without undergoing any training or trade test.

b) The point of control is defined as "means the point at which an electrical installation on or in any premises can be switched off by a user or lessor from the electricity supplied from the point of supply, or the point at which a particular part of an electrical installation on or in any premises can be switched off where different users occupy different portions of such premises".

Multiple POCs may exist, such as sub-distribution boards, and alternative supplies (e.g., PV systems) are integrated as per **SANS 60364-7-712**, which emphasises safe maintenance and accessibility (e.g., **712.513.101**).

SANS 60364-7-712

712.1

Scope

*This part of IEC 60364 applies to the electrical installation of PV systems intended to supply **all or part** of an installation.*

*The equipment of a PV installation, like any other item of equipment, is dealt with only so far as its selection and application in the installation is concerned. A PV installation **starts** from a PV module or a set of PV modules connected in series with their cables, provided by the PV module manufacturer, **up to the user installation or the utility supply point (point of common coupling)**.*

Requirements of this document apply to

- PV installations not connected to a system for distribution of electricity to the public,*
- PV installations in parallel with a system for distribution of electricity to the public,*

- *PV installations as an alternative to a system for distribution of electricity to the public,*
- *appropriate combinations of the above.*

712.513 Accessibility

712.513.101

*The selection and erection of a PV installation shall facilitate safe maintenance and shall not adversely affect provisions made by the manufacturer of the electrical equipment to enable maintenance or service work to be carried out safely. Combiner boxes which contain **overcurrent and/or switching devices** shall be capable of being reached for inspection, maintenance or repairs without necessitating the dismantling of structural parts, cupboards, benches or the like.*

c) The point of supply is defined as "means the point at which electricity is supplied to any premises by a supplier".

PV systems, alternative supplies, Which encompass off-grid, grid tied and hybrid installations which are included in this definition, but the DoEL's interpretation fails to clarify this.

d). The supplier is defined as "in relation to a particular electrical installation, means any person who supplies or contracts or agrees to supply electricity to that electrical installation".

A user generating their own electricity (e.g., via PV systems) can be considered a supplier (prosumer), as recognised in regulatory documents.

- 6. When the definition refers to a single phase electricity supply at the point of control, it refers to a supply that is fed from a point of supply that is supplied to a premises by a supplier.*

This does not exclude alternative supplies (e.g., PV systems, generators), which are fixed electrical equipment.

- 7. The regulations do not refer to the type of circuits in the electrical installation such as DC or conversions from single to three phase in an electrical installation. It just refers to the point of control.*

This suggests that an Electrical Tester of Single Phase (ETSP) is allowed to work on installations where the point of supply is single-phase and can also test and certify components beyond the point of control such as three-phase generators, inverters or DC systems, as long as the primary point of supply and point of control remain single-phase. According to the Electrical Installation Regulations (EIR) 2009, an Installation Electrician (IE) is permitted to work on "any installation," while an ETSP is limited to installations with a "single-phase electricity supply" at the point of control for tasks like

verification, certification, construction, testing, and inspection of electrical installations (which refers to the system from the point of control to the point of consumption).

The ETSP's role is confined to ensuring compliance with single-phase supply requirements at the point of control, and they are not allowed to engage with multi-phase or DC systems beyond these limits, as specified in the EIR 2009.

DC systems, particularly PV installations and battery storage, introduce electrical behaviours fundamentally different from AC. These include constant voltage levels without zero-crossing, which increase the risk of arcing, make fault interruption more complex, and require specialised protection, disconnection, and testing equipment. Improper testing or installation can result in thermal runaway, fire, or electrocution. These hazards are beyond the scope of the standard training and registration for an Electrical Tester for Single Phase (ETSP).

8. *An alternative supply is different from the supply. The alternative supply can be a photovoltaic (PV) installation, gas generator, diesel generator, wind turbines, etc., that belongs to the user of the electrical installation in most of the cases.*

SANS 10142-1 confirms that alternative supplies are separate and must comply with clauses 5.1 and 5.2, which address safety and compliance requirements. While an ETSP may certify installations supplied by a single-phase grid, generator, or inverter, certifying the DC portion of a PV system (e.g., panels, batteries) is a complex task requiring specialised training beyond the ETSP's scope.

Additionally, a PV "off-grid" installation's point of supply (POS) would be the PV panels or battery and would not incorporate any "grid".

9. *Therefore, electrical testers for single phase cannot be excluded from issuing a certificate of compliance for an electrical installation that includes an alternative supply, where the supply at the point of control is a single phase supply.*

The DoEL's interpretation that ETSPs *cannot be excluded* "not excluded" from issuing CoCs for installations including PV systems is a misapplication of legal language. "Not excluded" does not equate to "authorised" or "competent." There is a critical distinction between the absence of an express prohibition and the positive legal authority to act. Authorisation requires specific qualifications, certifications, or regulatory approval, as mandated by the Occupational Health and Safety Act, 1993, the EIR 2009, and **SANS 10142-1**. Allowing ETSPs to issue CoCs for DC installations, for which they lack training, violates these regulatory frameworks, jeopardises public safety (e.g., risks of electrical faults or fires), and undermines the credibility of CoCs.

This misinterpretation creates significant industry confusion, disadvantages qualified Installation Electricians (IEs), and exposes stakeholders—homeowners, businesses, insurers, and municipalities—to legal and financial liabilities from non-compliant installations. Customers and

insurers rely on CoCs as valid safety assurance documents, and allowing under-qualified individuals to issue them erodes trust in the regulatory process and reduces compliance incentives among professionals.

Conclusion

Based on the above points, we conclude the following regarding an ETSP's authority to issue CoCs:

- **Can an ETSP issue a CoC for an installation (e.g., plugs, lights) supplied by a single-phase grid? Yes.**
- **Can an ETSP issue a CoC for an installation supplied by a single-phase generator? Yes.**
- **Can an ETSP issue a CoC for an installation supplied by a single-phase inverter? Yes.**
- **Can an ETSP issue a CoC for the DC portion (e.g., panels, batteries) of an installation fed through an inverter? No.**

The DoEL's failure to distinguish between "not excluded" and "authorised" has led to a dangerous ambiguity that enables unqualified ETSPs to certify complex DC installations, including PV systems and battery storage. This practice violates **IEC 62446-1**, which requires competent persons familiar with DC systems to verify PV installations, up to 1,500V. ETSPs lack the necessary training and qualifications, as their curriculum does not cover DC systems, unlike Installation Electricians (IEs), who are equipped to handle "any electrical installation."

We therefore, respectfully and urgently request that the Chief Inspector re-evaluate the current interpretation and issue a revised interpretation note or directive, to be published in the Government Gazette or DoEL Circulars, explicitly stating that ETSPs are not permitted to issue CoCs for any DC installations, including PV and battery storage systems. This clarification is essential to ensure consistent enforcement, safeguard public welfare, uphold the professional integrity of the electrical industry, and align with international standards under the IEC framework.

Should this matter remain unaddressed, we are prepared to seek further legal counsel to ensure accountability and compliance with the law. We trust that the DoEL will act swiftly to rectify this critical oversight, restore confidence in the CoC system, and protect public safety.

Signed:



Electrical Contractors Association of South Africa (ECA(SA))

