SAPVIA
South African Photovoltaic Industry Association

BRAVOSCAN
APPROVED INSPECTION AUTHORITY OF SA

INDUSTRY WEBINAR

From Compliance to Sustainability: The Role of NRCS and NRS

Understanding how NRCS and NRS Requirements Shape Safety, Quality, and Renewable Energy in South Africa

Presentation

This Webinar is brought to you by SAPVIA's Manufacturing Working Group

SAPVIA
South African Photovoltaic Industry Association

BRAVOSCAN
APPROVED INSPECTION AUTHORITY OF SA

Speakers

Facilitator:

Mr. Gareth Burley
Manufacturing Working Group Co-Chairperson

Presenters

Mr. Leon Roos
Inspector at BravoScan

Mr. Ruan Coetzee
Compliance Officer at BravoScan

SAPVIA
South African Photovoltaic Industry Association

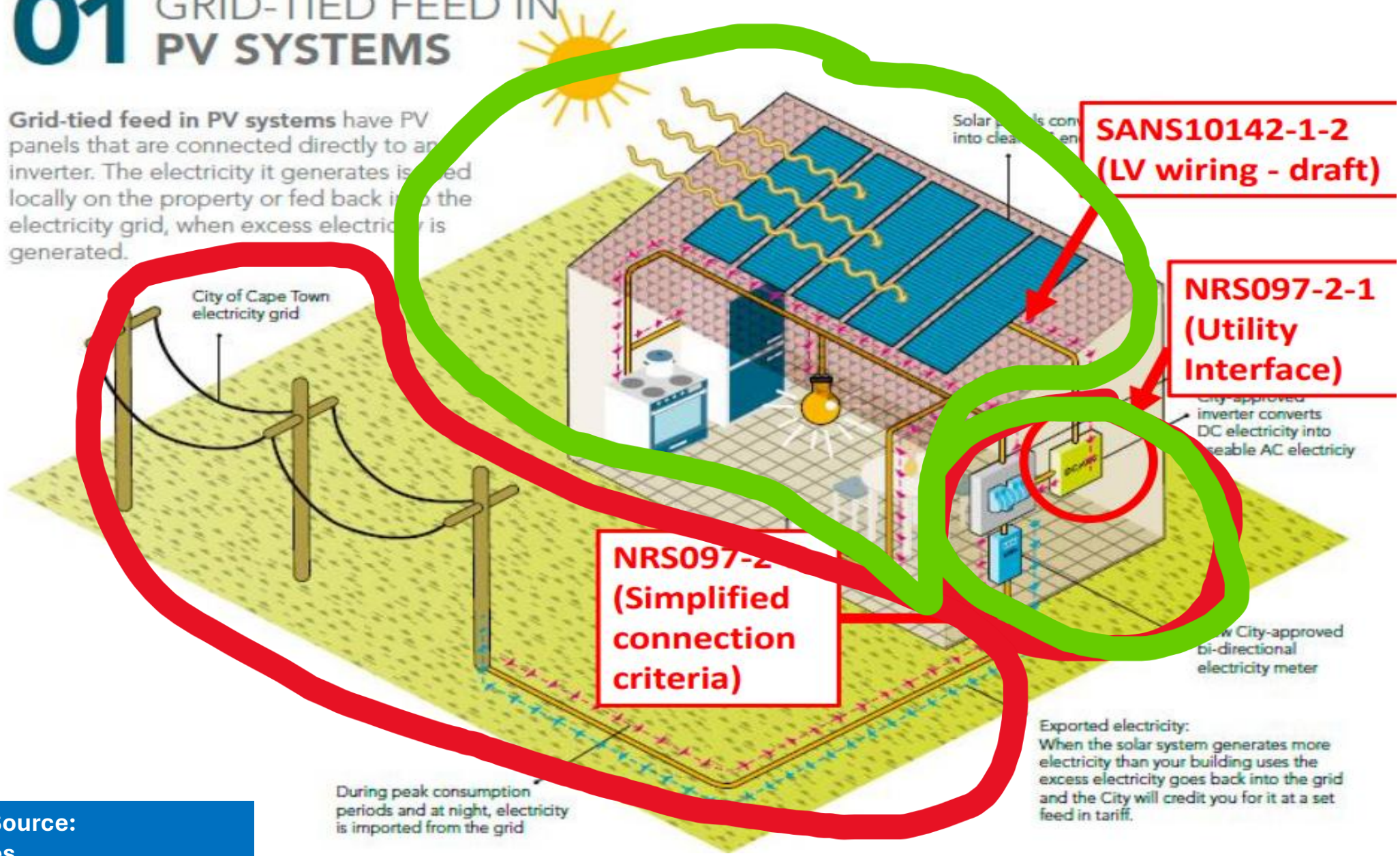
BRAVOSCAN
APPROVED INSPECTION AUTHORITY OF SA

What is the law?
NRCS or NRS

Understanding by means of legal comparison

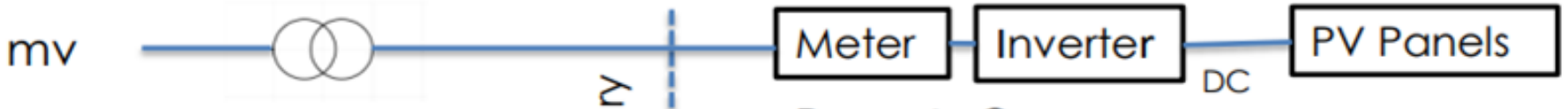
01 GRID-TIED FEED IN PV SYSTEMS

Grid-tied feed in PV systems have PV panels that are connected directly to an inverter. The electricity it generates is used locally on the property or fed back into the electricity grid, when excess electricity is generated.



Declare Source:
NRS slides

Applicable Legislation



Utility

OHS Act
- Safety of staff
  - Electrical Machinery Regs
  - Electrical Installation Regs

Electricity Regulation Act
- Generation License
- Distribution License
  - Distribution Grid Codes
  - (draft) Small Scale Electricity Generation Regulations

Property Owner

OHS Act
- Safety of Installation
  - Electrical Installation Regs
    - Wiring Code SANS10142-1-2
    - CoC

Electricity Regulation Act
- Generation License requirements
- NERSA Rules for SSEG
- Utility Electricity By-law
  - Municipal Requirements for SSEG
  - NRS 097-2-1
  - NRS 097-2-3

Declare Source:
NRS slides

Before we start:

Accepted premise is that standards are good and compulsory to comply with in the South African electrical industry:

- Standards Act
- Consumer Protection Act
- Occupational Health and Safety Act
- Municipal By-Laws
- Electricity Regulation Act

Standards Act

"Only 53 of SABS's approximately 5,000 standards are mandatory. However, depending on the laws, other standards may be considered compulsory as well (i.e., electricity standards) and it may create uncertainty for businesses. Reports indicate that SABS is taking a tougher line on companies that violate mandatory standards around consumer protection, this comes in the wake of the amended Consumer Protection Act of 2008, which, from 1 April 2011, changed many aspects of business in South Africa by introducing new legislation concerning manufacturers and service providers. This legal framework aims to protect the consumer through controls on product liability, sales and marketing practices and fairness in consumer contracts, among other issues."

International Trade Administration, U.S. Department of Commerce,

Consumer Protection Act (Section 55)

Consumer's rights to safe, good quality goods

55. (1) This section does not apply to goods bought at an auction, as contemplated in section 45.

(2) Except to the extent contemplated in subsection (6), every consumer has a right to receive goods that—

(a) are reasonably suitable for the purposes for which they are generally intended;

(b) are of good quality, in good working order and free of any defects;

(c) will be useable and durable for a reasonable period of time, having regard to the use to which they would normally be put and to all the surrounding circumstances of their supply; and

(d) comply with any applicable standards set under the Standards Act, 1993 (Act No. 29 of 1993), or any other public regulation.

Occupational Health and Safety Act Definition of standards

"**standard**" means any provision occurring—

(a) in a specification, compulsory specification, code of practice or standard method as defined in section 1 of the Standards Act, 1993 (Act 29 of 1993); or

(b) in any specification, code or any other directive having standardisation as its aim and issued by an institution or organisation inside or outside the Republic which, whether generally or with respect to any particular article or matter and whether internationally or in any particular country or territory, seeks to promote standardisation;

Occupational Health and Safety Act Section 22

22. Sale of certain articles prohibited

Subject to the provisions of section 10(4), if any requirement (including any health and safety standard) in respect of any article, substance, plant, machinery or health and safety equipment or for the use or application thereof has been prescribed, no person shall sell or market in any manner whatsoever such article, substance, plant, machinery or health and safety equipment unless it complies with that requirement.

Occupational Health and Safety Act Section 10

10. General duties of manufacturers and others regarding articles and substances for use at work

(1) Any person who designs, manufactures, imports, sells or supplies any article for use at work shall ensure, as far as is reasonably practicable, that the article is safe and without risks to health when properly used and that it complies with all prescribed requirements.

(2) Any person who erects or installs any article for use at work on or in any premises shall ensure, as far as is reasonably practicable, that nothing about the manner in which it is erected or installed makes it unsafe or creates a risk to health when properly used.

(3) Any person who manufactures, imports, sells or supplies any substance for use at work shall—

(a) ensure, as far as is reasonably practicable, that the substance is safe and without risks to health when properly used; and

(b) take such steps as may be necessary to ensure that information is available with regard to the use of the substance at work, the risks to health and safety associated with such substance, the conditions necessary to ensure that the substance will be safe and without risks to health when properly used and the procedures to be followed in the case of an accident involving such substance.

Occupational Health and Safety Act Section 9

9. General duties of employers and self-employed persons to persons other than their employees

(1) Every employer shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that persons other than those in his employment who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.

(2) Every self-employed person shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that he and other persons who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.

Occupational Health and Safety Act “reasonable practicable”

“**reasonably practicable**” means practicable having regard to—

(a) the severity and scope of the hazard or risk concerned;

(b) the state of knowledge reasonably available concerning that hazard or risk and of any means of removing or mitigating that hazard or risk;

(c) the availability and suitability of means to remove or mitigate that hazard or risk; and

(d) the cost of removing or mitigating that hazard or risk in relation to the benefits deriving therefrom;

Occupational Health and Safety Act Section 47

47. State bound

This Act shall bind the State.

State includes Municipalities which is deemed local sphere of government

Occupational Health and Safety Act Section 44

41. This Act not affected by agreements

Subject to the provisions of sections 10(4) and 37(2), a provision of this Act or a condition specified in any notice or direction issued thereunder or subject to which exemption was granted to any person under section 40, shall not be affected by any condition of any agreement, whether such agreement was entered into before or after the commencement of this Act or before or after the imposition of any such condition, as the case may be.

Electrical Installation Regulations

5. **Design and construction**

(1) No person may authorise, design, install or permit or require the installation of an electrical installation, other than in accordance with a health and safety standard incorporated into these Regulations under section 44 of the Act. 1

(2) No person may use components within an electrical installation unless those components comply with the standards referred to in the relevant incorporated standard referred to in subregulation (1), and proof of compliance shall be identifiable on the components or certification shall be available from the manufacturer or supplier of the materials or components in terms of the National Regulator for Compulsory Specifications Act, 2008 (Act 5 of 2008). 2

(3) Items of an electrical installation not covered by an incorporated health and safety standard, and the conductors between the point of supply and the point of control, shall be installed in accordance with the by-laws or regulations of the supplier concerned. 3

What is the NRCS?

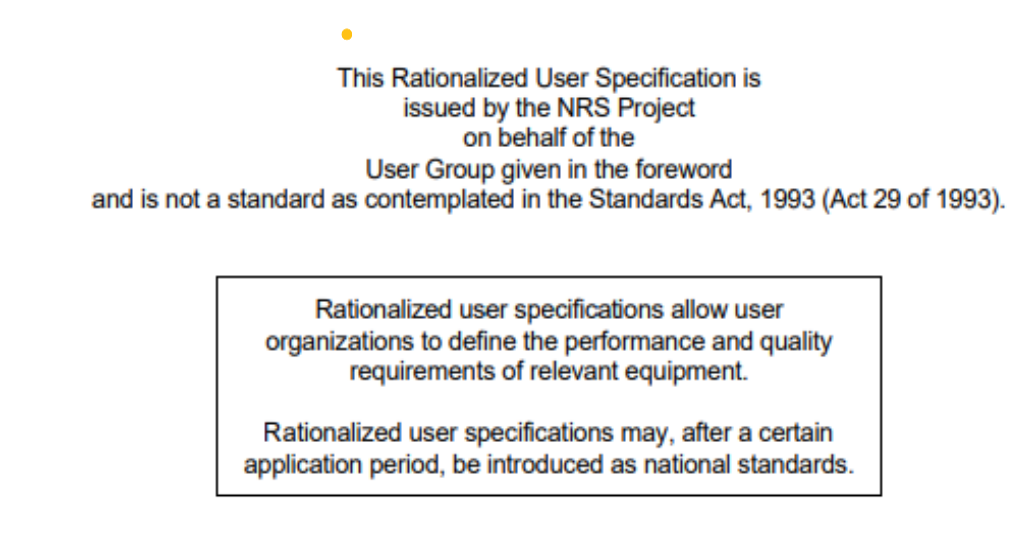
- The National Regulator for Compulsory Specifications (NRCS) is an agency of the Department of Trade, Industry and Competition (the dtic). The organisation was established on 1 September 2008, in accordance with the provision of National Regulator for Compulsory Specifications Act 5 of 2008 and emerged as an independent organisation from the original Regulatory Division of the South African Bureau of Standards.
- The NRCS mandate includes promoting public health and safety, environmental protection and ensuring fair trade. This is achieved through development of and administration of technical regulations and compulsory specifications.
- The legislative mandate of NRCS is derived from the following legislations: the National Regulator for Compulsory Specifications Act 5 of 2008, the Legal Metrology Act 9 of 2014, and the National Building Regulations and Building Standards Act 103 of 1977

In short

- NRCS is a statutory regulator and compliance body, and compulsory obligations are set out in acts and regulations.
- E.g. Electrical Installation Regulation 5

What is the NRS?

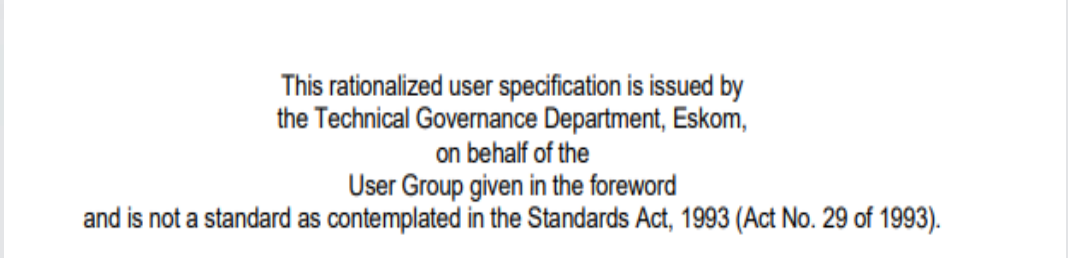
- The National Rationalised Specifications (NRS) Association of South Africa is a voluntary organization that develops industry specifications for the electricity supply and distribution industries. The NRS Association aims to improve the reliability and resilience of the national electricity grid.



This Rationalized User Specification is
issued by the NRS Project
on behalf of the
User Group given in the foreword
and is not a standard as contemplated in the Standards Act, 1993 (Act 29 of 1993).

Rationalized user specifications allow user organizations to define the performance and quality requirements of relevant equipment.

Rationalized user specifications may, after a certain application period, be introduced as national standards.



This rationalized user specification is issued by
the Technical Governance Department, Eskom,
on behalf of the
User Group given in the foreword
and is not a standard as contemplated in the Standards Act, 1993 (Act No. 29 of 1993).

Who is the NRS?

This section of NRS 097-2 was prepared on behalf of the NRS Management Committee and approved by it for use by supply authorities.

This section of NRS 097-2 was prepared by a working group which, at the time of publication, comprised the following members:

Beukes J (Dr) (Chairman)	Eskom
Brandow F	City of Ekurhuleni
Cooper S	Cape Agulhas Municipality
Govender V	Eskom
Groenewald H	Eskom
Herselman M	City of Tshwane
Jefferies I	City of Cape Town
Lamour B	Nelson Mandela Bay Municipality
Mpholo M	Mangaung Municipality
Moonsamy R	Eskom
Nundlal V (Project Leader)	NRS Project Management Agency (NRS PMA)
Pillay L	George Municipality
Raedani H	City of Ekurhuleni
Sewchurran S	eThekwini Municipality
van Rooyen K	Eskom
van der Riet R	City of Cape Town
Vermeulen P	City Power Johannesburg (SOC) Ltd.

An industry interest group was consulted on the contents of this section of NRS 097-2 and its comments were incorporated where the working group was in agreement. The industry interest group comprised the following members:

Anderson A	Trackos
Bekker B (Dr)	University of Stellenbosch
Benjamin B	SMA Solar (EMI)
Bosman A	SunRanch.Solar
Botha G (Dr)	Northwest University
Burger I (Dr)	Solarfuture
de Beer G	Sasol
Fourie H	ABB
Kossak B	Fronius
la Cock F	Solaredge
Monk L	Schneider-Electric
Seedat M	Fronius
Mushwana C	CSIR
Mwanza C	NERSA
Yeshaya A	Solaredge

Acknowledgements

This section of NRS 097-2 is based on the work of Clinton Carter-Brown, who was instrumental in developing the content of this specification.

This rationalized user specification is issued by
the Technical Governance Department, Eskom,
on behalf of the
User Group given in the foreword
and is not a standard as contemplated in the Standards Act, 1993 (Act No. 29 of 1993).

This Rationalized User Specification is
issued by the NRS Project
on behalf of the
User Group given in the foreword
and is not a standard as contemplated in the Standards Act, 1993 (Act 29 of 1993).

Rationalized user specifications allow user organizations to define the performance and quality requirements of relevant equipment.

Rationalized user specifications may, after a certain application period, be introduced as national standards.

But is it compulsory to comply with the NRS specifications?

IT DEPENDS....

Even cases with seemingly identical facts do not always wind up with the same results. A good attorney will never tell a client exactly what outcome to expect. Instead, a good attorney will answer with "it depends" and then explain to a client why "it depends".

From the NRS

- Compliance is not compulsory as it limits the application within the documents itself.

This rationalized user specification is issued by
the Technical Governance Department, Eskom,
on behalf of the
User Group given in the foreword
and is not a standard as contemplated in the Standards Act, 1993 (Act No. 29 of 1993).

This Rationalized User Specification is
issued by the NRS Project
on behalf of the
User Group given in the foreword
and is not a standard as contemplated in the Standards Act, 1993 (Act 29 of 1993).

Rationalized user specifications allow user organizations to define the performance and quality requirements of relevant equipment.

Rationalized user specifications may, after a certain application period, be introduced as national standards.

From adoption via NERSA

Electricity Regulation Act

Advisory forums

5. The Regulator may appoint forums consisting of as many members of the Regulator, employees of the Regulator and other persons as may be necessary to advise the Regulator in general or on a particular matter.

Customer and end user forums

6. (1) The Regulator may establish customer or end user forums consisting of as many members of the Regulator, licensees, employees of the Regulator and categories of customers or end users as may be necessary to advise the Regulator on matters affecting customers or end users in general, or a category of customers or end users in particular.

(2) The Regulator must require a licensee to establish and fund a customer or end users forum in the manner set out in the licence held by such a person.

From adoption via NERSA

Electricity Regulation Act

Rule making process is set out in the Act

Decisions of Energy Regulator

10. (1) Every decision of the Energy Regulator must be in writing and be—

(a) consistent with the Constitution and all applicable laws;

(b) in the public interest;

(c) within the powers of the Energy Regulator, as set out in this Act, the Electricity Act, the Gas Act and the Petroleum Pipelines Act;

(d) taken within a procedurally fair process in which affected persons have the opportunity to submit their views and present relevant facts and evidence to the Energy Regulator;

(e) based on reasons, facts and evidence that must be summarised and recorded; and

(f) explained clearly as to its factual and legal basis and the reasons therefor.

(2) Any decision of the Energy Regulator and the reasons therefor must be available to the public except information that is protected in terms of the Promotion of Access to Information Act, 2000 (Act No. 2 of 2000).

(3) Any person may institute proceedings in the High Court for the judicial review of an administrative action by the Energy Regulator in accordance with the Promotion of Administrative Justice Act, 2000 (Act No. 3 of 2000).

(4) ***(a)*** Any person affected by a decision of the Energy Regulator sitting as a tribunal may appeal to the High Court against such decision.

(b) The procedure applicable to an appeal from a decision of a magistrate's court in a civil matter applies, with the changes required by the context, to an appeal contemplated in paragraph *(a)*.

47. (1) The Regulator may, after consultation with—

(a) licensees;

*****

(c) such other interested persons as may be necessary,

make guidelines and publish codes of conduct and practice, or make rules by notice in the Gazette.

(2) Without derogating from the general nature of subsection (1), guidelines and codes of conduct and practice may relate to—

(a) the relationship between licensees and customers and end users;

(c) performance objectives and the setting, approving and meeting of performance improvement targets;

(d) codes of practice relating to the operation, use and maintenance of transmission and distribution power systems;

(e) any other ancillary or administrative matter appropriate for the proper implementation of this Act.

From adoption by Municipalities

Western Cape

Electricity Supply By-law, 2023

Published in Western Cape Provincial Gazette 8809 on 11 August 2023

Commenced on 11 August 2023

[This is the version of this document from 11 August 2023 and includes any amendments published up to 31 January 2025.]

"**applicable standard specification**" means—

SANS 1019 Standard voltage-, currentsand insulation levels for electricity supply

SANS 1607 Electromechanical watt-hour meters,

SANS 1524 Parts 0,1 & 2 - Electricity dispensing systems,

SANS IEC 60211 Maximum demand indicators, Class 1.0,

SANS IEC 60521 Alternating current electromechanical watt-hour meter (Classes 0.5, 1 & 2),

SANS 0142 Code of practice for the wiring of premises,

NRS 047 National Rationalized Specification for the Electricity Supply - Quality of Service,

NRS 048 National Rationalized Specification for the Electricity Supply - Quality of Supply,

NRS 057 South African National Standard Code of Practice for Electricity Metering, and

NRS 097 Grid Interconnection of Embedded Generators;

"**Regulations**" means Regulations made in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), as amended;

"**safety standard**" means the Code of Practice for the Wiring of Premises SANS 10142-1 incorporated in the Regulations;

From adoption by Municipalities

Tshwane

"NRS 047" means the national rationalised specification *NRS 047-1:1999 – Electricity supply – Quality of service Part 1: Minimum standards*, as amended from time to time;

"NRS 048" means the national rationalised specifications *NRS 048-1:1996 – Electricity supply – Quality of supply Part 1*, *NRS 048-2:1996 – Electricity supply – Quality of supply Part 2*, *NRS 048-3:1998 – Electricity supply – Quality of supply Part 3*, *NRS 048- 4:1999 – Electricity supply – Quality of supply Part 4*, *NRS 048-5:1998 – Electricity supply – Quality of supply Part 5*, as amended from time to time;

"NRS 049" means the national rationalised specification *NRS 049 - Advanced metering infrastructure for residential and commercial customers*

"NRS 057" means the national rationalised specification *NRS 057-2:2000 – Electricity metering Part 2: Minimum requirements*, as amended from time to time;

"regulations" means the regulations made under the Occupational Health and Safety Act, 1993 (Act 85 of 1993), or the Electricity Regulations Act, 2006 (Act 4 of 2006);

"SANS 10142-1" means the code of practice *SANS 10142-1/SABS 0142-1:2003 – The wiring of premises Part I: Low-voltage installations*, as issued by South African Bureau of Standards, and as incorporated in the regulations and amended from time to time;

"SANS 1019" means the specification *SANS 1019/SABS 1019:2001 – Standard voltages, currents and insulation levels for electricity supply*, as issued by the South African Bureau of Standards and as amended from time to time;

"SANS 1507" means the specification *SANS 1507/SABS 1507:2002 – Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3 300/5 V)*, as issued by the South African Bureau of Standards and as amended from time to time;

"safety standard" means a health and safety standard as defined in the Occupational Health and Safety Act, 1993 (Act 85 of 1993), and includes SANS 10142-1;

"specification" means the applicable standard or specification accepted in the electricity supply industry and includes the applicable specifications of the National Regulator for Compulsory Specifications and any national standards issued by the South African Bureau Of Standards (SABS), and includes any applicable national rationalised specification (NRS);

From adoption by Municipalities

Tshwane

CHAPTER 7: ELECTRICAL CONTRACTORS AND ACCREDITED PERSONS

60. Requirements additional to the requirements of the regulations

(1) Where an application for a new electrical connection or increased supply of electricity has been made to the Municipality, the engineer may at his or her discretion accept notification of the completion of any part of the electrical installation, the circuit arrangements of which permit the electrical installation to be divided up into well-defined separate portions. Any part of the electrical installation may, at the discretion of the engineer, be inspected, tested and connected to the supply mains by or on behalf of the Municipality, as though that part of the electrical installation were a complete installation, subject to the submission by the owner, consumer or applicant, as the case may be, of a certificate of compliance from a duly qualified electrical contractor or accredited person for that part of the electrical installation.

From adoption by Municipalities

Tshwane

(2) The inspection and testing referred to in subsection (1) may be carried out at the discretion of the Municipality and shall not in any way relieve the consumer or its appointed electrical contractor or accredited person, as the case may be, from his or her liability for any defect in the electrical installation or a the relevant portion thereof. The inspection and testing by or on behalf of the Municipality in terms of subsection (1) shall not be taken in any circumstance, even where the electrical installation has been connected to the supply mains, to indicate or guarantee in any way that the electrical installation has been carried out in accordance with the regulations and other applicable laws, correctly or efficiently with the most suitable materials, or that the electrical installation is in accordance with these By-laws or the safety standard, and the Municipality shall not be liable for any defect or fault in the electrical installation.

(3) The Municipality shall not be liable for –

(a) the work done or an act performed by any contractor or any electrical contractor or accredited person appointed by the Municipality, on a consumer's premises; and

(b) any loss, expenditure or damage which may be occasioned by fire or by an accident arising from the state of the wiring on the premises.

Promotion of Administrative Justice Act

'empowering provision' means a law, a rule of common law, customary law, or an agreement, instrument or other document in terms of which an administrative action was purportedly taken;

'decision' means any decision of an administrative nature made, proposed to be made, or required to be made, as the case may be, under an empowering provision, including a decision relating to-

(a) making, suspending, revoking or refusing to make an order, award or determination;

(b) giving, suspending, revoking or refusing to give a certificate, direction, approval, consent or permission;

(c) issuing, suspending, revoking or refusing to issue a licence, authority or other instrument;

(d) imposing a condition or restriction;

(e) making a declaration, demand or requirement;

(f) retaining, or refusing to deliver up, an article; or

(g) doing or refusing to do any other act or thing of an administrative nature, and a reference to a failure to take a decision must be construed accordingly;

3. Procedurally fair administrative action affecting any person

(1) Administrative action which materially and adversely affects the rights or legitimate expectations of any person must be procedurally fair.

(2)

(a) A fair administrative procedure depends on the circumstances of each case.

(b) In order to give effect to the right to procedurally fair administrative action, an administrator, subject to subsection (4), must give a person referred to in subsection (1)—

(i) adequate notice of the nature and purpose of the proposed administrative action;
[S 3(b)(i), formerly s 3(b)(a), renumbered by s 46 of Act 42 of 2001.]

(ii) a reasonable opportunity to make representations;
[S 3(b)(ii), formerly s 3(b)(b), renumbered by s 46 of Act 42 of 2001.]

(iii) a clear statement of the administrative action;
[S 3(b)(iii), formerly s 3(b)(c), renumbered by s 46 of Act 42 of 2001.]

(iv) adequate notice of any right of review or internal appeal, where applicable; and
[S 3(b)(iv), formerly s 3(b)(d), renumbered by s 46 of Act 42 of 2001.]

(v) adequate notice of the right to request reasons in terms of section 5.
[S 3(b)(v), formerly s 3(b)(e), renumbered by s 46 of Act 42 of 2001.]

Is a standard
a standard for success
or
is it a standard for disaster?

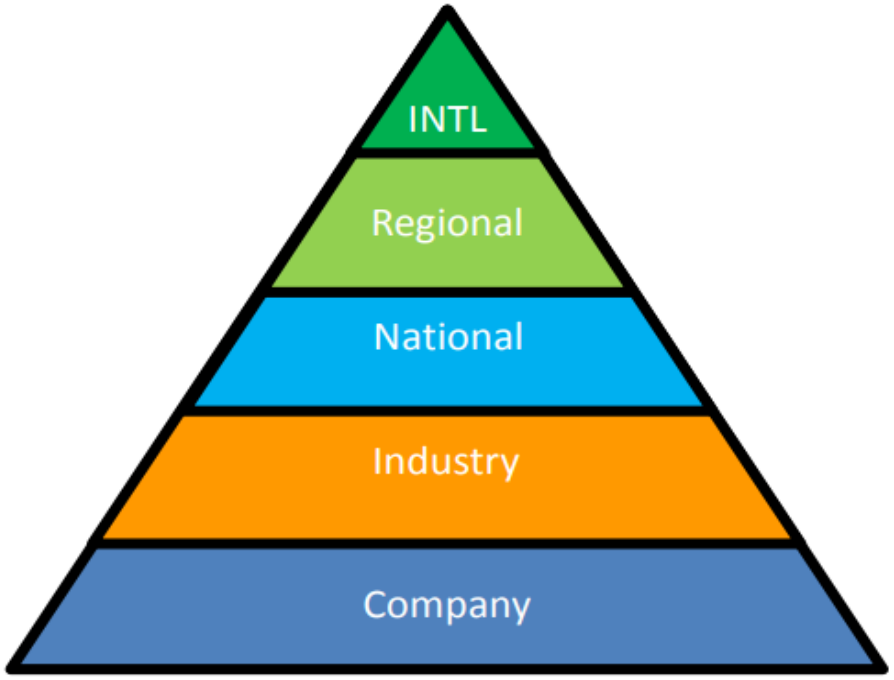
-don’t beat me to the funny part

For success

Standards and Specifications

- NOTE: No standard means anything until promulgated by a regulatory body

- International
  - IEC / IEEE
- Regional
  - EN / AFSEC
- National
  - SABS
- Industry
  - NRS
- Company
  - Internal



Disaster for the Suppliers

THE SUPREME COURT OF APPEAL
OF SOUTH AFRICA

Reportable
Case no: 262/2004

In the matter between:

ESKOM HOLDINGS LTD **Appellant**

and

JACOB JOHANNES HENDRICKS obo
J.J.H **Respondent**

Coram : **SCOTT, STREICHER, BRAND, LEWIS *et* MLAMBO JJA**

Date of Hearing : **3 MAY 2005**

Date of delivery : **27 MAY 2005**

Summary: Child of 11 years climbing pylon supporting high voltage power lines – negligence of Eskom – failure to take reasonable steps to prevent harm to the public – especially children – anti-climbing device inadequate in the circumstances – child attempting to touch glass insulators – shocked – impulsive behaviour indicative of absence of delictual capacity.

Eskom vs Hendricks

[8] Section 26 of the Electricity Act 41 of 1987 provides:

□e26. In any civil proceedings against an undertaker arising out of damage or injury caused by induction or electrolysis or in any other manner by means of electricity generated or transmitted by or leaking from the plant or machinery of any undertaker, such damage or injury shall be presumed to have been caused by the negligence of the undertaker, unless the contrary is proved.'

It is common cause that Eskom is an 'undertaker' as defined in the Electricity Act and that J.' injuries were caused by means of electricity transmitted by Eskom's 'plant or machinery' in the form of the high voltage power lines. The effect of the section therefore is that Eskom bore the onus of proving on a balance of probabilities that it was not negligent or, if it was, that there was no causal link between that negligence and the injuries sustained by J.. It was also common cause that in the event of Eskom being found to have been negligent, its conduct would have been wrongful. In other words, Eskom owed a legal duty to would-be climbers of its pylons to act without negligence, ie to take such steps, if any, as may have been reasonable in the circumstances to prevent them from suffering harm. (See *Gouda Boerdery BK v Transnet Ltd* **[2004] 4 All SA 500** (SCA) para 12.)

https://www.saflii.org/za/cases/ZASCA/2005/46.html

[3] It is necessary at the outset to give a short description of both the pylon and the ACD. The pylon is of the lattice variety and is just over 21 metres high. It is square at the base, or almost square. Steel columns at each corner taper inwards as they ascend to a point about 14 metres above the ground. Thereafter the columns rise vertically until just below the apex at which stage they slope sharply inwards to form a point. The pylon has three cross-arms, one above the other. The lowest is at the 14 metre level. The outer ends of each support a single power line; in other words, the tower supports six lines in all. Each is attached at the lower end to a line of glass (or porcelain) insulators having the appearance of glass rings which descend vertically from the end of each cross-arm. The result is that each power line is in the region of about a metre below the cross-arm from which it derives its support. The four sides of the tower are braced by cross-beams. All appear to be positioned diagonally save for three which are below the three metre level and which are horizontal. The significance of this feature is that the horizontal beams would facilitate the climbing of the pylon, while the highest of the three would appear from the photographs that were handed in to provide a useful foothold for anyone attempting to tamper with the ACD which is situated at the three metre level. The three cross-arms are of a similar lattice construction. Another significant feature is the existence of climbing pegs which were fitted to at least one of the vertical columns from a point just above the ACD. Leaving aside the ACD for the moment, it follows from what has been said that the pylon is readily climbable by an aspirant climber who would also have no difficulty traversing out to the end of a cross-arm should he so wish. Finally, it is necessary to mention that the pylon was situated about 150 metres from the respondent's house and adjacent to the Malibu High School, Blue Downs.

(4) The ADC fitted to Eskom's pylons is a standard design. It takes the form of a horizontal fence of barbed wire and in appearance, at least, is a formidable barrier. As required by the Code of Practice for Overhead Power Lines (the NRS Code), it is installed as low as possible but 'not less than three metres above the ground'. It is constructed as follows. A horizontal bar is mounted diagonally at each corner of the tower so as to extend both outwards and inwards. In other words, the bar extends both beyond and within the frame of the tower. Ten grooves are cut into the bar on its upper side; five on the inside of the frame and five on the outside. These are cut at an angle outwards, ie away from the corner column to which the bar is attached. A length of barbed wire is fastened at the one end to one of the bars and then threaded into the grooves and drawn from one bar to the next around the structure 10 times before being fastened to the bar at which the process began. The result is a horizontal fence with five strands of barbed wire both on the inside and outside of the tower.

[10] What remains of the inquiry regarding Eskom's alleged negligence, therefore, is what is generally referred to as the second leg of the inquiry, namely whether a reasonable person would have taken steps to guard against the danger and, if so, whether the steps taken by the defendant were reasonable in the circumstances. What is to be regarded as reasonable must depend upon a consideration of all the relevant circumstances. It is inappropriate to place any limitation on these, but the inquiry would ordinarily involve a consideration of:

□e(a) the degree or extent of the risk created by the actor's conduct; (b) the gravity of the possible consequences if the risk of harm materialises; (c) the utility of the actor's conduct, and (d) the burden of eliminating the risk of harm."

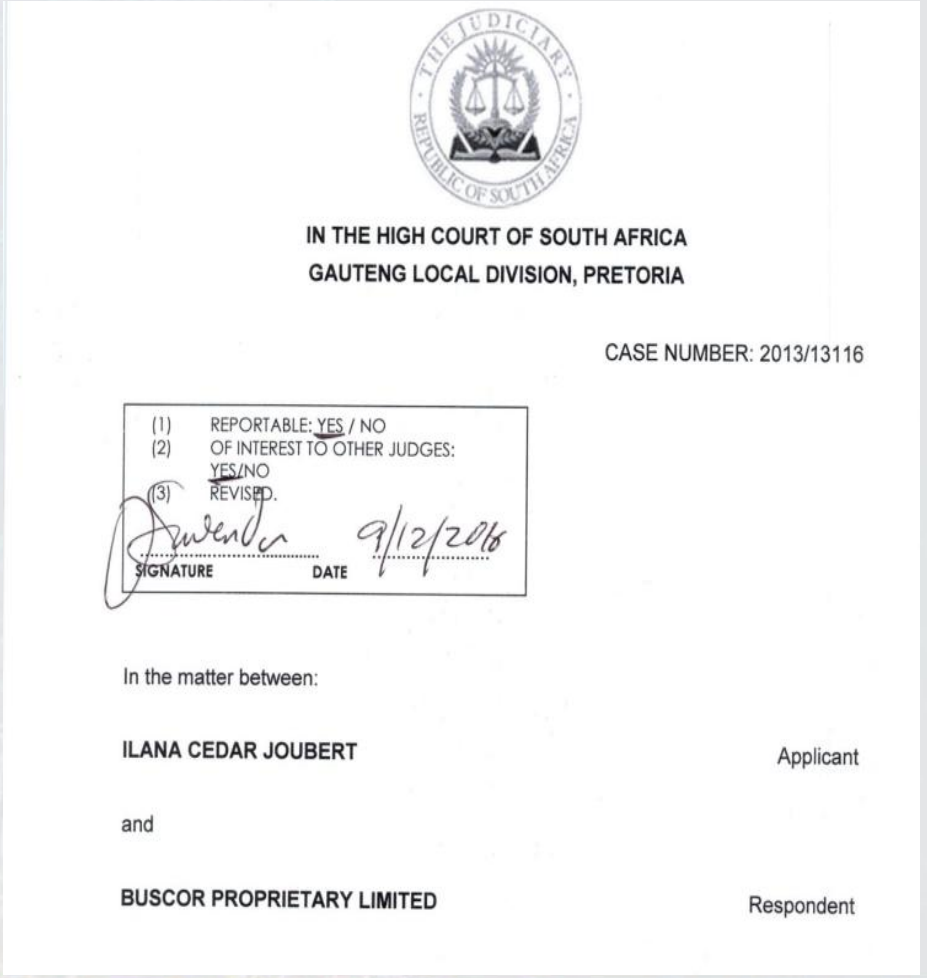
[12] The debate in this court as to whether Eskom was negligent or not ultimately centred around whether the ADC it installed on the pylon in question was one which was reasonable in the circumstances. As I have indicated, both the NRS code and the Electrical Machinery Regulations require lattice-type pylons to be 'adequately protected'. However, neither provides an indication of what is to be regarded as adequate. Nonetheless, this requirement of the industry does provide some assistance.

[13] It was emphasized in evidence and argued before us that it would be virtually impossible to erect a barrier that was impenetrable. That is no doubt so, but it is not suggested that the ACD should have been impenetrable. In the present case, J. was able to pass through the ACD simply by pushing the wire out of the grooves. He required no tool to do so, not even an ordinary pair of household pliers. The evidence suggests that the device hardly retarded his progress up the tower. Some eight years later, Professor Reynders, who described himself as about to retire, was similarly able to push the wire out of the grooves and climb through the device 'without any difficulty'. The angle at which the grooves were cut is indicative of a design that was intended to prevent the device from being dismantled in this way. But whether it was possible to do so by reason of faulty design or improper installation need not be decided. The point is that although formidable in appearance, the device in reality did not constitute an effective barrier. Nor could it be contended that, although properly installed, the wire had become slack with the passage of time. Mr Arthur Gullan, a former employee of Eskom who gave evidence on its behalf, testified that the wire would not become slack of its own accord. In the circumstances, the device installed by Eskom cannot in my view be regarded as having 'adequately' protected the pylon within the meaning of the regulations and the NRS code. If for any reason the barbed wire could not have been made sufficiently taut, it would have been a simple matter to affix it to the horizontal bars at each groove. This could have been done at very little cost and effort. Perhaps the simplest (but not the only) method would have been to use binders of the kind that one encounters in an ordinary fence. In that event, a child, or other aspirant climber, would at least have had to go to the extent of arming himself with a tool of some kind to dismantle the device. In my judgment a reasonable person would at least have ensured that the ACD could not be dismantled simply by pushing the wire out of one or more of the grooves. Indeed, it is not without significance that in the case of the devices fitted to the pylons belonging to the Cape Town City Council, the strands of barbed wire are made fast to the horizontal bars so that they can not simply be pushed out of the way.

[13] It was emphasized in evidence and argued before us that it would be virtually impossible to erect a barrier that was impenetrable. That is no doubt so, but it is not suggested that the ACD should have been impenetrable. In the present case, J. was able to pass through the ACD simply by pushing the wire out of the grooves. He required no tool to do so, not even an ordinary pair of household pliers. The evidence suggests that the device hardly retarded his progress up the tower. Some eight years later, Professor Reynders, who described himself as about to retire, was similarly able to push the wire out of the grooves and climb through the device 'without any difficulty'. The angle at which the grooves were cut is indicative of a design that was intended to prevent the device from being dismantled in this way. But whether it was possible to do so by reason of faulty design or improper installation need not be decided. The point is that although formidable in appearance, the device in reality did not constitute an effective barrier. Nor could it be contended that, although properly installed, the wire had become slack with the passage of time. Mr Arthur Gullan, a former employee of Eskom who gave evidence on its behalf, testified that the wire would not become slack of its own accord. In the circumstances, the device installed by Eskom cannot in my view be regarded as having 'adequately' protected the pylon within the meaning of the regulations and the NRS code. If for any reason the barbed wire could not have been made sufficiently taut, it would have been a simple matter to affix it to the horizontal bars at each groove. This could have been done at very little cost and effort. Perhaps the simplest (but not the only) method would have been to use binders of the kind that one encounters in an ordinary fence. In that event, a child, or other aspirant climber, would at least have had to go to the extent of arming himself with a tool of some kind to dismantle the device. In my judgment a reasonable person would at least have ensured that the ACD could not be dismantled simply by pushing the wire out of one or more of the grooves. Indeed, it is not without significance that in the case of the devices fitted to the pylons belonging to the Cape Town City Council, the strands of barbed wire are made fast to the horizontal bars so that they can not simply be pushed out of the way.

[14] It follows, therefore, that in my view Eskom failed to rebut the presumption of negligence. On the contrary, negligence on its part was established on the evidence. Eskom's appeal must accordingly fail.

Disaster for the User



IN THE HIGH COURT OF SOUTH AFRICA
GAUTENG LOCAL DIVISION, PRETORIA

CASE NUMBER: 2013/13116

(1) REPORTABLE: YES / NO
(2) OF INTEREST TO OTHER JUDGES: YES/NO
(3) REVISED.

SIGNATURE DATE 9/12/2016

In the matter between:

ILANA CEDAR JOUBERT Applicant

and

BUSCOR PROPRIETARY LIMITED Respondent

Section 9 and Section 37(1) interpretation of the Act

In this regard, OHSA imposes both a duty and a standard of care in absolute terms. For this reason, on the plain reading of OHSA, and the reasons above, the liability of the employer is a strict one. It is thus not necessary to consider other parallel legislation in this regard.

[35] Given that the standard of care is already hard wired in OHSA together with the regulations, any existing fault (whether dolus or culpa) is inherent and can be inferred from the failure to meet the prescribed standard if it is found to be so from the facts. Furthermore, the enacted measure of reasonableness touches squarely on the extent of the employer's negligence or otherwise.

I must accept that the effect of section 37 of OHSA is that the onus would be shifted to the respondent to demonstrate the reasonable measures taken. In my view, the absence of negligence on the part of the respondent will be an inherent component of discharging the onus of proving that it took the reasonable measures required of it. Under such circumstances, in a claim based on the breach of the provisions of OHSA, it would not be necessary to deal with negligence separately. It will be inherent or can be inferred from the failure to meet the prescribed standard should the failure be proved. Thus, an employer would not be deprived of showing an absence of negligence on its part as contended. To hold to the contrary would result in yet another absurdity. The complaint by the respondent is not well founded.

In summary: **The Court further held that Section 9 of OHSA not only imposes a duty of care on the employer but also provides for the standard of care.** Liability arises from the ***foreseeable risk inherent in the employer's hazardous activity and operations***, as well as conduct falling below the standard of care in relation to the nature of the activity and operations. The Respondent failed to prove the absence of negligence and establish that reasonable measures were taken to avoid harm. Thus, the employer was strictly liable for the injury and death of the deceased.

For success

It is our recommendation that an industry wide holistic approach should be adopted regarding the regulation of electrical installations as the user , electrical contractor, supplier face the same ***legal duty of care***

SAPVIA
South African Photovoltaic Industry Association

BRAVOSCAN
APPROVED INSPECTION AUTHORITY OF SA

- **Key Differences Between NRS 097 and SANS 10142-1**
- **Addressing Misapplications and regulatory misalignment**

Understanding the Scope of NRS 097 vs. SANS 10142-1

Aspect	NRS 097	SANS 10142-1
Type of Document	Technical specification	National standard (SABS)
Purpose	Regulates **grid interconnection** of embedded generation	Governs **all electrical installations**, ensuring safety and compliance
Scope	Applies **only to grid-connected systems**	Applies to **all installations**, including grid-tied, off-grid, and UPS systems
Regulatory Authority	Developed by **Eskom & municipalities**	Recognized by **SABS, OHS Act (EIR 5)**
Product Certification	**Does not certify products**	References **specific product standards** but governed under the NRCS (SABS)
Enforcement	**Enforced by municipalities** in some by-laws	**Legally required** for all electrical installations
Applicability	Limited to **grid-tied generation installations**	Applies to **all registered electricians and users**

Application and Enforcement

- **NRS 097 is a technical specification** meant for grid-tied embedded generation (systems that feed power into the grid).
- **SANS 10142-1 is the legal standard** under the Occupational Health and Safety Act (OHS Act) for all electrical installations, including backup and off-grid systems.
- **NRS 097 does not regulate off-grid, UPS, or backup systems** that do not export power have the ability to export power.
- **Municipalities enforce NRS 097 primarily for interconnection purposes**, but it should not extend to installations that do not affect the grid.
- **SANS 10142-1 already provides installation and safety requirements** for all systems, whether grid-tied or standalone, it only excludes the integration section. This is to be updated with the next edition.
- **Compliance should be based on system functionality**—grid-tied systems must adhere to NRS 097 where applicable, while all installations must comply with SANS 10142-1.

Product Compliance and Certification

- **NRS 097 does not certify or approve products**—it only sets technical parameters and product specification standards for grid compliance, eg SANS 62109.
- **Product approval falls under the NRCS (National Regulator for Compulsory Specifications)**, which issues Letters of Authority (LOA) for electrical products.
- **EIR 5(2) mandates that all electrical components must comply with compulsory specifications**, meaning inverters must have NRCS approval where required.
- **Where NRCS certification is unavailable, EIR 5(3) allows suppliers** (Eskom, CoCT, COJ), **to approve products**, which is how the inverters list of CoCT is used, whether the inverter complies to the specifications set out in NRS 097.
- **All installations, regardless of grid connection, must comply with EIR and SANS 10142-1** to ensure safety and legality.
- **Municipalities** should enforce product compliance based on **all applicable** legal standards, not **exclusively** through **NRS 097**, as it does not cover all inverter types.

Misapplication of NRS 097 by Municipalities

- **NRS 097 applies specifically to grid-interconnected embedded generation** and does not regulate all alternative supply systems.
- **Municipal enforcement often extends beyond its scope,** affecting installations that comply with other recognized standards (e.g., IEC 62040 for UPS systems).
- **SANS 10142-1 (7.12.6.1) already provides clear safety requirements** for alternative supply systems, making additional restrictions unnecessary.
- **EIR 5(7) prohibits undue supplier restrictions**, ensuring legally recognized standards remain applicable.
- **A broader, standards-based approach is needed**, allowing compliance flexibility for different types of alternative supplies.

Closing remarks

- **Standards should be applied correctly**:
  - NRS 097 has a defined role but **should not override other standards**.
  - Compliance should align with **SANS 10142-1 and IEC standards** where applicable.
- **Municipalities must follow Electrical Installation Regulations**:
  - **EIR 5(7) prohibits restricting legal standards**, meaning municipalities **cannot apply NRS 097 beyond its intended scope**.
  - Product approvals **must follow EIR 5(2) and 5(3)**, not just municipal lists.
- **A Balanced Approach is Needed**:
  - Compliance should ensure **grid safety** while **allowing diverse, compliant technologies**.
  - Industry professionals must advocate for **clear, standardised enforcement** that aligns with national regulations.

SAPVIA
South African Photovoltaic Industry Association

THANK YOU

For more information or if you have any questions, feel free to reach out to us

+27 (0)11 568 8460/61

info@sapvia.co.za

www.sapvia.co.za

Follow us for news and updates on: