

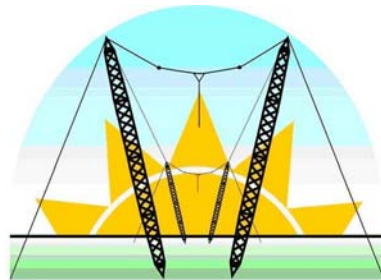
NAMIBIA ELECTRICITY SUPPLY INDUSTRY

QUALITY OF SUPPLY AND SERVICE STANDARDS

QUALITY OF SUPPLY STANDARD

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For Implementation By:



ELECTRICITY CONTROL BOARD

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Abbreviations:

- ECB – Electricity Control Board
- ESI – Electricity Supply Industry
- LV – Low Voltage (as defined in NRS 048 Part 1)
- MV – Medium Voltage (as defined in NRS 048 Part 1)
- QOSS – Quality of Supply and Service
- QOS – Quality of Supply
- RED – Regional Electricity Distributor



1 Introduction and References

The Electricity Control Board (ECB) has embarked on a consultative process for determining appropriate standards governing the quality of electricity supply and quality of service (QOSS) provided by licensed electricity undertakings in Namibia.

The key objective of the process is to involve all relevant stakeholders to the maximum possible extent and to come up with standards that are applicable to and can be implemented in Namibia.

1.1 References

This document must be read together with the following reference documents:

- NRS 048 Part 1 – 1996 First Edition
- NRS 048 Part 2 – 2003 Second Edition
- NRS 048 Part 3 – 2002 Third Edition
- NRS 048 Part 4 – 1999 First Edition Incorporating Amendment 1
- NRS 048 Part 5 – 1998 First Edition

When reading these references in conjunction with this document the following replacements must be noted:

- All references to 'NER' must be replaced with 'ECB'
- All references to 'South Africa' must be replaced with 'Namibia'
- All references to '22kV' must be replaced with '33kV'



2 Electricity Supply Quality Standard for Namibia

The Standards applicable in Namibia are detailed here in the form of amendments to the NRS standards documents listed in section 1.1.

2.1 NRS 048 Part 1: Overview of Implementation of Standards and Procedures

NRS 048 Part 1 is applicable with the following amendments:

2.1.1.1 Paragraph 4.5 is replaced as follows:

The ECB will not receive individual QOS complaints directly. Customers are expected to address such complaints in the first place to the Licensee, who shall attempt to resolve the complaint. Should the Licensee fail to resolve the customer's complaint within a reasonable time and/or to the customer's satisfaction, then the customer shall have the right to direct the complaint to the ECB.

The complaints procedure is dealt with in detail in the *Implementation and Benchmarking Framework* document, available from the ECB.

2.2 NRS 048 Part 2: Voltage Characteristics, Compatibility Levels, Limits and Assessment Methods

NRS 048 Part 2 is applicable without amendments.

These minimum standards are overall standards (as defined in the *Implementation and Benchmarking Framework* document) and do not carry penalties.

The following additions are made:

2.2.1 Dip Performance of the Transmission System

For Namibian conditions with long radial networks and a lack of long range historical detail dip performance data it is considered applicable to regulate the dip performance of the Transmission network on the basis of faults per 100km of network per year. Data for more than 10 years is available and is presented in the following tables.

Table 1: NamPower Transmission System: Faults per 100km of Network per Year

Year	330 kV	220 kV	132 kV	66 kV
1990	1.30	2.90	-	21.43
1991	5.40	3.50	10.00	22.40
1992	2.11	5.61	5.65	16.03
1993	1.92	2.84	16.27	20.61
1994	0.77	2.84	10.79	10.55
1995	1.15	3.71	15.41	12.31
1996	1.15	3.04	16.10	10.25
1997	1.92	4.07	27.74	20.88
1998	0.38	2.31	14.34	10.30
1999	0.77	1.95	16.01	15.13

Table 2: NamPower Transmission System: Summary of Faults per 100km of Network per Year

	330 kV	220 kV	132 kV	66 kV
Average	1.69	3.28	14.70	15.99
Maximum	5.40	5.61	27.74	22.40
Minimum	0.38	1.95	5.65	10.25



The following is applicable in this respect:

- The Transmission Licensee shall maintain records necessary to produce annual statistics as per the above tables and shall report annually to the ECB, including an analysis of the performance during the year under review.
- The Transmission Licensee shall on request make available fault statistics for any given site to the ECB or potential or existing customers.
- The Transmission Licensee shall manage the fault performance of the Transmission network. This means that the performance shall be recorded and documented and that a formal annual review process is established which shall review the performance for the year and identify areas of concern and appropriate corrective action. The results of this review process shall be reported to the ECB.
- The Transmission Licensee shall use its reasonable endeavours to improve the faults performance of the Transmission network over time.
- The provisions of this section of the standard do not relieve the Transmission Licensee of the responsibility to measure dip performance as specified in NRS 048 and as provided for in the *Implementation and Benchmarking Framework* document.
- The ECB intends to regulate the Transmission Licensee in terms of dip performance as per NRS 048 once at least five years of statistical data has been collected at all sites specified in the *Implementation and Benchmarking Framework* document. This is expected to be the case in 2009.

2.2.2 Voltage Spike and Surge Protection

The following is required in terms of surge protection:

- Licensees and customers both have a responsibility for surge protection.
- The Licensee shall design and construct networks in such a way as to include reasonable measures for surge and voltage spike protection.
- The Licensee shall maintain its networks to their design standard. Checking and replacement of surge arresters shall form part of regular inspection and maintenance programmes.
- The issue of surges and voltage spikes shall be addressed by the Licensees as part of their quality management systems.

2.3 NRS 048 Part 3: Procedures for Measurement and Recording

NRS 048 Part 3 is applicable with the following amendments:

2.3.1 Section 4.6: HV and MV Forced Interruption Statistics

2.3.1.1 Distribution Licensees

Return of forced interruption indices shall NOT be initially required from Distribution Licensees in recognition of prevailing human resource capacity and system constraints. However, Distribution Licensees are encouraged to implement associated systems and processes for recording the necessary information to make the returns. It is anticipated that this exemption may be revoked once all REDs are fully established, i.e. as from 2006.

2.3.1.2 Transmission and Generation Licensees

The Transmission and Generation Licensees shall make the required returns.



2.4 NRS 048 Part 4: Application Guidelines for Utilities

NRS 048 Part 4 is applicable without amendment.

2.5 NRS 048 Part 5: Instrumentation and Transducers for Voltage Quality Monitoring and Recording

NRS 048 Part 5 is applicable without amendment.