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**NRS 047-1:2002**

Edition 2.3

(Edition 2: Incorporating Amendment No.3:2002)

# **Rationalized User Specification**

## **ELECTRICITY SUPPLY QUALITY OF SERVICE**

### **Part 1: Minimum standards**

Preferred requirements for applications in  
the Electricity Supply Industry



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.

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## Foreword

This part of NRS 047 has been prepared for the National Electricity Regulator by a working group appointed by the Electricity Suppliers Liaison Committee (ESLC) and an interest group of stakeholders recommended by the NER.

The working group comprised the following members:

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This part of NRS 047 cancels and replaces NRS 047:1996.

Annexes A, B and C are for information only.

## Introduction

The preparation of this part of NRS 047 on quality of service in the Electricity Supply Industry (ESI) has been driven by the National Electricity Regulator (NER) to facilitate liaison between customers and the licensed suppliers of electricity (licensees).

In order to assess the quality of the service provided, the NER will require licensees to provide as much information as is practical. However, this will incur costs which will ultimately be passed on to the customer. In terms of the needs and principles of economical and affordable electricity supply in South Africa, it is essential that a balance be maintained between these costs and the service activities measured.

This specification consists of two parts. This part of NRS 047 is restricted to the measuring of those service activities that have been agreed upon by the ESI, various customer organizations and the NER for the definition of service standards. This part of NRS 047 also tabulates the various quality-of-service activities that the licensees would report on to the NER. Should reporting show that certain targets are unrealistic, these targets could be changed in revisions of this part of NRS 047.

It is recognized that not all aspects are addressed in detail and it is noted that the missing information will be included in future revisions of this part of NRS 047.

This part of NRS 047 provides minimum standards. Licensees rendering higher standards should maintain or improve on those higher standards.

This part of NRS 047 does not address issues of negligence.

## Key words

Electricity supply; Quality of service; Minimum standards.

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## SPECIFICATION

### Electricity supply — Quality of service

#### Part 1: Minimum standards

For application by the National Electricity Regulator

#### 1 Scope

This part of NRS 047 outlines various service activities and the minimum standards for measuring the quality-of-service provided to customers by electricity utilities in South Africa. It also introduces various quality-of-service activities that the utilities would report on to the National Electricity Regulator (NER). This reporting is intended to give the NER a common basis for evaluating quality of service when:

- a) granting distribution licences;
- b) monitoring the performance of licensees on an ongoing basis; and
- c) dealing with customer complaints.

#### 2 Normative references

The following standards and specifications contain provisions which, through reference in this text, constitute provisions of this part of NRS 047. At the time of publication, the editions indicated were valid. All standards and specifications are subject to revision, and parties to agreements based on this part of NRS 047 are encouraged to investigate the possibility of applying the most recent editions of the documents listed below. Information on currently valid national and international standards and specifications can be obtained from the South African Bureau of Standards.

SABS ISO 9004-1:1994, *Quality management and quality system elements — Part 1: Guidelines*.

SABS ISO 9004-2:1991, *Quality management and quality system elements — Part 2: Guidelines for services*.

NRS 047-2:1999, *Electricity supply — Quality of service — Part 2: Reporting guidelines*.

NRS 048-2:1996, *Electricity supply — Quality of supply — Part 2: Minimum standards*.

### 3 Terms, definitions and abbreviated terms

#### 3.1 Terms and definitions

For the purpose of this part of NRS 047, the following definitions apply:

**3.1.1 customer:** A person (or legal entity) who either has entered into an electricity supply agreement with a licensee, or legally consumes electricity supplied by that licensee.

NOTE In 4.2 a potential customer (i.e. a person or legal entity that makes an application or requests an electrical supply) is referred to as a customer.

**3.1.2 dwelling:** A place or structure of residence.

**3.1.3 forced interruption:** An interruption that

- a) occurs when a component is taken out of service immediately, either automatically or as soon as switching operations can be performed, as a direct result of emergency conditions, or
- b) is caused by human error or by the improper operation of equipment.

**3.1.4 licensee:** A supply authority licensed by the NER to distribute electricity.

**3.1.5 lost call:** A telephone call that gets through to the licensee but that is not answered.

**3.1.6 planned interruption:** An interruption that occurs when a component is deliberately taken out of service (by the utility or its agent) at a selected time, usually for the purpose of construction, preventative maintenance or repair.

**3.1.7 prescription:** Limitation by law of the time within which a claim can be made.

**3.1.8 rural (networks or system):** Networks or systems serving clustered or scattered structures, usually of low density, not served by well established infrastructure (roads, telecommunications, etc.). The power network is usually supplied radially by overhead lines emanating from one distribution station.

**3.1.9 temporary supply:** An electricity supply that is provided to a customer in the event of unusual circumstances. Such a supply might not conform to the service levels normally provided by agreement between the customer and the licensee.

**3.1.10 urban (areas):** Areas characterized by formally or informally built structures, usually of high density, served by well established infrastructure (roads, telecommunications, etc.). The power network is usually supplied by more than one distribution station.

#### 3.2 Abbreviated terms

**3.2.1 d:** day(s)

**3.2.2 EPL:** emergency priority list

**3.2.3 ESI:** Electricity Supply Industry

**3.2.4 h:** hour(s)

**3.2.5 NER:** National Electricity Regulator



## 4 Requirements

### 4.1 General

#### 4.1.1 Principles governing the application of this part of NRS 047

The following principles apply:

- a) in the granting or retention of licences, the NER will assess compliance or non-compliance with acceptable quality-of-service standards. The NER will not require licensees to demonstrate compliance for each customer. The NER will prescribe statistical sampling to verify continued compliance;
- b) it is the responsibility of licensees to manage the quality of service provided to their customers. A supply agreement that makes customers aware of their rights and obligations could form part of the management system;
- c) the decision by a licensee to provide different levels of service will be a mutually agreed business decision between the licensee and the customer. A licensee may contract with specific customers, or groups of customers, to provide different levels of service under agreed terms;
- d) it is not intended that the NER receive all individual complaints directly. Licensees and their customers are expected to resolve their problems between themselves in the first instance. Only if a problem cannot be resolved, should the NER become involved to achieve a solution to the problem;
- e) if a complaint is received by the NER, a licensee will be given a reasonable period to demonstrate that the service complies with the requirements specified for it. This period will be determined by the NER in conjunction with the complainant and the licensee;
- f) the service standards specified do not apply in cases where licensees are experiencing unavoidable circumstances, such as:
  - 1) War damage, uprising, pilfering, theft, sabotage, attack and malicious damage and areas identified by the South African Police Service as being of high risk to personnel.
  - 2) Damage caused by accidental and unavoidable occurrences attributable to third parties.
  - 3) Direct material damage caused primarily by the unusual intensity of a natural event, where the usual precautions against such damage could not prevent it or could not be taken.
  - 4) Atmospheric phenomena that are extreme and unusual, in terms of annual events, and that could not be prevented because of their cause or their extent, and to which electrical networks, especially overhead networks, are particularly vulnerable. Normal lightning activity is excluded because licensees are expected to design and install appropriate lightning protection on the electrical network.
  - 5) Industrial action that prevents normal operation of the network.
  - 6) Motor vehicle accidents that are not reasonably avoidable.
  - 7) Situations where the licensee provides a temporary supply to keep customers supplied during maintenance and construction work, or to minimize the extent and duration of a total loss of supply. The licensee should state the negotiated duration of the temporary supply, which should be by mutual agreement between the customer and the licensee. The normal supply should be reinstated as soon as possible.

The circumstances listed above do not automatically absolve the licensee from any action that is deemed negligent.

- g) a customer who requires an investigation into the level of service provided might be required to pay a cost-related fee in advance to cover the cost of the investigation. Such a fee will be refunded should the complaint be justified; and
- h) matters that are dealt with in legislation are not covered by this specification (for example, the proving of negligence and the use of official languages in communicating with customers).

#### **4.1.2 Reporting procedures, information systems and management systems**

The NER recognizes the fact that licensees will need time to put the necessary reporting procedures and information systems in place to comply with the requirements of this specification.

Initially, licensees will only be required to report to the NER on those service activities where data are already available.

Where practicable, the licensees should revise their existing reporting procedures and information systems to be able to report in the format specified in NRS 047-2.

Where new information systems are installed, they should be configured to provide the information as required by NRS 047-2.

In the future, the need for a particular licensee to report on additional service activities will be determined by the NER in agreement with the licensee.

While some key parameters of quality of service are measurable, overall quality of service includes many aspects that cannot readily be measured. Overall quality of service is dependent upon appropriate quality management systems.

The guidelines given in SABS ISO 9004-1 and SABS ISO 9004-2 shall be used by licensees in the management of the services that they provide to their customers.

### **4.2 Processing of requests for supply**

#### **4.2.1 Service activities for the processing of requests for supply**

The management of the following activities for the processing of requests for supply will influence the quality of service:

- a) applications;
- b) feasibility studies;
- c) quotations/estimates;
- d) acceptance of quotation and payment;
- e) design;
- f) construction (including certificate of compliance);
- g) commissioning and decommissioning;
- h) supply contract between licensee and customer; and
- i) meeting of agreed deadlines.

NOTE An element of "segmentation" might be required with regard to applications; for example, the processing required for applications submitted by township developers will differ from that required for applications submitted by individual customers.

NOTE 1 Subclauses 4.2.2 and 4.2.3 applies to both the upgrading of existing supplies as well as new supplies.

NOTE 2 Where a licensee has a standard approved tariff for providing a supply, the tariff is regarded as a quotation. For these customers the reporting for providing a quotation (see 4.2.1 of part 2) is not required.

The service activities for measuring and reporting on the provision of a supply are given in table 1.

**Table 1 — Service activities for the provision of a supply**

1	2	3	4
Service activity	Measure of service standard	Minimum standard	Reporting format
Quotations to customers	Time taken to provide the customer with a quotation for the cost of providing a supply	See 4.2.2	See 4.2.1 of NRS 047-2
Provision of a supply	Time taken to make a supply available (once all customer obligations have been met)	See 4.2.3	See 4.2.2 of NRS 047-2

The service standards that are stipulated in subclauses 4.2.2 and 4.2.3 should be regarded as minimum standards. Should a customer require a supply sooner than the standard dictates, the licensee should negotiate the time frame and any additional costs to meet the shorter deadline with the customer. The cost should be justified.

#### **4.2.2 Quotations to customers**

If a customer has made a written request for supply and has provided all the necessary documentation, the following time frames for quotation shall apply:

- a) within 10 working days where existing infrastructure can be used;
- b) within 1 month where network extensions are required; and
- c) if new networks have to be installed or if supply is required for industrial and commercial customers, the period for providing a quotation shall be negotiated between the customer and the licensee.

The target percentage success is at least 97 %.

#### **4.2.3 Providing a supply**

If a customer has paid all monies owing and met all other obligations stipulated by the licensee and if, where applicable, all subsidies have been received, the following time frames shall apply for the provision of supply:

- a) within 30 working days where existing infrastructure can be used;
- b) within 2 months where LV network extensions are required and within 3 months where MV network extensions are required; and

NOTE It might be necessary to negotiate an extended period of time to accommodate delivery of equipment from manufacturers.

- c) if new networks have to be installed, if HV extensions are required or if supply is required for industrial and commercial customers, the period for providing the supply shall be negotiated between the customer and the licensee.

The target percentage success is at least 97 %.

### 4.3 Credit metering

#### 4.3.1 Service activities for credit metering

The management of the following activities and factors influencing the quality of service in dealing with credit meter customers:

- a) meter reading (frequency);
- b) billing (format, information provided and methods);
- c) account queries;
- d) payment method;
- e) payment venues (queuing times, operating hours);
- f) special meter readings;
- g) check-meter readings;
- h) disconnections;
- i) reconnections;
- j) penalties for non-payment and theft;
- k) meter auditing for accuracy; and
- l) calibration.

The service activities for measuring and reporting on credit metering are given in table 2.

**Table 2 — Service activities for credit metering**

1	2	3	4
Service activity	Measure of service standard	Minimum standard	Reporting format
Meter reading	Frequency of meter readings for various customers	See 4.3.3	See 4.3.1 of NRS 047-2
Penalties for non-payment	Periods and time frame for disconnections and reconnections	See 4.3.7	See 4.3.2 of NRS 047-2
Account queries	Time to respond to account queries	See 4.3.8	See 4.3.3 of NRS 047-2
Credit meter accuracy queries	Response time to check meter accuracy	See 4.3.10	See 4.3.4 of NRS 047-2

#### 4.3.2 Information to be provided to credit meter customers

The following information shall be provided to credit meter customers:

- a) the scheduled frequency of meter readings;
- b) the method used to estimate electricity consumption during periods when no meter readings are taken;
- c) the format of the electricity account;

- d) the methods of payment of the account and the period allowed for payment before penalties are applied;
- e) the location of payment venues and the hours of business;
- f) the penalties for late payment, for non-payment and for the disconnection/reconnection process;
- g) how a customer should initiate an account query;
- h) the process that the licensee will follow when it is impossible to gain access to a customer's premises;
- i) the process for dealing with special meter readings and check-meter readings;
- j) the process for dealing with meter accuracy queries and the fees charged for accuracy audits;
- k) the penalties applied in the case of tampering, by-passing of meters, or any other method used to procure electrical energy illegally;
- l) where applicable, the process for recovering any energy account arrears; and
- m) where applicable, the voltage transformer/current transformer factors should be available or calculable.

#### **4.3.3 Frequency of meter reading**

Customer with a supply size of less than 50 kVA should be read at least once in every three months. If this is not possible, the meter should be read at least once in a twelve-month period. Where the use of the 50 kVA limit is not feasible, the kVA limit shall be agreed upon with the NER.

The meters of other customers should be read once a month.

The target average percentage success is at least 95 %.

NOTE Additional readings should be taken when premises are vacated and new customers are registered.

#### **4.3.4 Estimated energy consumption**

In cases where it is necessary to estimate electricity consumption for a particular period, the method of estimation shall be based on historical data or, in the absence of such data, on a method agreed upon between the customer and the licensee.

#### **4.3.5 Format of the account**

##### **4.3.5.1 Essential information**

The following information shall be clearly presented on the account:

- a) the date of the previous meter reading (or estimate) and the corresponding meter reading (or estimate);
- b) the date of the current meter reading (or estimate) and the corresponding meter reading (or estimate);
- c) the applicable tariff;
- d) the number of units consumed (or estimated) during the period covered by the account;

- e) the cost of the electricity consumed during the period covered by the account and the daily average during that period;
- f) the date and the amount of the previous payment;
- g) the outstanding balance, if applicable;
- h) any other amounts charged and a description of what the charges are for;
- i) the total amount payable;
- j) the latest date by which the account is to be paid in order to avoid penalties;
- k) acceptable methods of payment; and
- l) any arrears, together with a written warning that disconnection will follow unless paid within 14 days.

#### **4.3.5.2 Optional information**

The following agreed upon information, and any additional and agreed upon information, should ideally also be presented on the account:

- a) the payment venues, hours of business, and telephone and telefax numbers;
- b) the voltage transformer/current transformer and load factors (where applicable) should be available or calculable;
- c) the account query procedure, including the applicable telephone numbers; and
- d) the consequences and procedures in the case of locked premises (see 4.3.9).

#### **4.3.6 Payment venues**

The licensee shall ensure that, wherever practical, facilities are provided within or close to urban residential, commercial or industrial areas to afford customers a reasonable opportunity to pay their accounts and to resolve account queries.

#### **4.3.7 Penalties for non-payment**

The following conditions shall be met unless different conditions have been contractually agreed upon:

- a) no disconnections shall be effected until at least 14 days after the due date for payment stipulated on the account;
- b) commercial and industrial customers shall be given at least 24 hours notice of an impending disconnection;
- c) disconnections shall only be carried out up to 2 h before normal closing time of the payment venue;
- d) disconnections shall not be carried out over weekends, public holidays or Fridays (unless normal payment and reconnection facilities are available on Saturday mornings), or on the day before a public holiday; and
- e) reconnections shall be effected as promptly as possible and no later than the first working day after the account has been settled satisfactorily and the reconnection fee has been paid.

The target average percentage success is at least 95 %.

#### **4.3.8 Account queries**

For accounts that require investigation, an account query made in person at a service/payment venue or telephonically shall be acted upon and be responded to within three working days, while a written query should be responded to within five working days.

The target average percentage success is at least 97 %.

#### **4.3.9 Locked premises**

In cases where the licensee is unable to gain access to a customer's premises for the purposes of reading the meter, a meter reading card or a notification (or both) shall be left for the customer's attention.

If the card, with an acceptable reading, has not been returned before the next billing, or if the customer has not contacted the licensee within this interim period, the licensee shall make every effort to make telephonic contact or personal contact with the customer.

If, after a predetermined period, it is impossible to gain access to the meter, the supply to the customer shall be disconnected after the customer has been informed in writing.

#### **4.3.10 Credit meter accuracy queries**

The licensee shall, on request, provide meter accuracy checking as a service to customers. Information on how to obtain the service and any associated costs shall be readily available to the customers.

Where applicable, any fee charged for checking the accuracy of a meter shall be refunded if the meter accuracy should prove to be outside the declared limits specified in the supply agreement.

Meter accuracy checks shall be performed within 15 working days of the receipt of the prescribed fee.

The target average percentage success is at least 95 %.

There shall be monetary adjustments either way (within the period of prescription).

NOTE See 3.1.7 for the definition of prescription.

Check-metering shall be used where applicable.

### **4.4 Prepayment metering**

#### **4.4.1 Service activities for prepayment metering**

The management of the following service activities influences the quality of service to prepayment meter customers:

- a) information to be provided to customers;
- b) vending stations (location and business hours);
- c) meter accuracy audits;
- d) frequency of meter inspections; and
- e) disconnections and reconnections.

The service activities for measuring and reporting on prepayment metering are given in table 3.

**Table 3 – Service activities for prepayment metering**

1	2	3	4
Service activity	Measure of service standard	Minimum standard	Reporting format
Provision of vending stations	Number of customers and transactions per vending station	See 4.4.3	See 4.4.1 of NRS 047-2
Business hours of vending stations	List of vending stations and the actual hours of business of each	See 4.4.4	See 4.4.2 of NRS 047-2
Prepayment meter accuracy queries	Response time to check meter accuracy	See 4.4.5	See 4.4.3 of NRS 047-2
Reconnection of pre-payment meters	Time taken to reconnect prepayment meters	See 4.4.7	See 4.4.4 of NRS 047-2

#### 4.4.2 Information to be provided to prepayment meter customers

The licensee shall provide every prepayment meter customer with the following information by means of a brochure issued at the time of installation of the service connection and periodically thereafter:

- a) the type of electricity token to be used and how to purchase and use the token;
- b) the applicable tariff (which shall also be displayed at the vending stations);
- c) the location of points of sale of tokens and the hours of business;
- d) the contact telephone numbers and addresses of the licensee's service centres, where service queries and queries concerning the meter can be handled;
- e) the process for dealing with meter accuracy queries and the fees charged for accuracy audits;
- f) the process that the licensee will follow when it is impossible to gain access to a customer's premises, and therefore to the meter;
- g) the process that will be followed when penalties are applied for tampering with, or bypassing, a pre-payment meter;
- h) the process for disconnecting the service; and
- j) where applicable, the process for the recovery of any electricity account arrears.

Changes in the approved tariff shall be announced in an appropriate way as and when required.

#### 4.4.3 Provision of vending stations

Where practical, there shall be a vending station within 5 km of every customer.

Where practical, the licensee shall provide at least one vending station for every 2 000 customers.

NOTE Where several vending stations at one location can be justified, these could be manned according to customers' purchasing patterns, with the maximum number manned at times of peak demand, hence the need to determine the number of transactions per vending station per year.

#### 4.4.4 Hours of business of vending stations

Vending stations should sell tokens during normal shopping hours on weekdays, and from 08:00 to 12:00 on weekends and public holidays.

Certain vending stations may close on weekends and public holidays, and during normal office hours, provided that there are vending stations in operation nearby.



#### **4.4.5 Prepayment meter accuracy queries**

The same meter accuracy checking service that is provided for credit meter customers shall be available to pre-payment meter customers (see 4.3.10).

The licensee shall provide the means to read, to transfer or refund, as appropriate, the amount of unexpended credit due to a customer when a prepayment meter is replaced or removed.

#### **4.4.6 Frequency of prepayment meter inspection**

The licensee shall have the right to inspect a prepayment meter at the customer's premises.

Meters may be inspected if tampering or theft is detected or suspected. The latter can be ascertained by studying the purchase patterns of consumers.

Where reasonable but unsuccessful attempts have been made to gain access to the prepayment meter, the licensee may disconnect the supply after having delivered a written warning to the customer.

#### **4.4.7 Reconnection of prepayment meters**

Prepayment meters should be reconnected within 48 working hours of receiving a request and the payment of the reconnection fee (except in the case of hard disconnections or service removals after tampering has taken place).

NOTE Normally a disconnection of the prepayment meter will be done by either opening the circuit-breaker or removing the fuse. However, in the case of a hard disconnection, a section of the service conductor is also removed.

The target average percentage success is at least 95 %.

### **4.5 Network faults**

#### **4.5.1 Service activities for network faults**

The management of the following service activities influences the quality of service in dealing with network faults:

- a) availability and location of fault reporting centres;
- b) hours during which faults may be reported;
- c) fault reporting procedures;
- d) telephone answering response time;
- e) response times;
- f) time to restore supply;
- g) number and duration of interruptions; and
- h) notification of planned interruptions.

The service activities for measuring and reporting on network faults are given in table 4.

**Table 4 — Service activities for network faults**

1	2	3	4
Service activity	Measure of service standard	Minimum standard	Reporting format
Fault reporting centres	Location and hours of business of fault reporting centres	–	See 4.5.1 of NRS 047-2
Fault reporting process	Prescribed procedures to be followed and appropriate information to be requested from the customer	See 4.5.2	See 4.5.2 of NRS 047-2
Forced interruptions	Time to restore the supply after a forced interruption	See 4.5.3	See 4.5.3 of NRS 047-2
Planned interruptions	Number and duration of planned interruptions	See 4.5.4	See 4.5.4 of NRS 047-2
Notice of planned interruptions	Notice of planned interruptions to be given to the affected customer at least 48 h in advance	See 4.5.5	See 4.5.5 of NRS 047-2

#### 4.5.2 Fault reporting process

The licensee shall provide a 24 h telephone service to receive reports of faults from customers (see 4.7.2).

The licensee shall provide a customer services office to receive reports of faults from the customers during normal office hours.

There may be a need to address customer faults from a different location after normal office hours; however, the telephone number to report faults telephonically shall remain the same. Hence the licensee shall have the facility to redirect telephone calls to the different location after hours.

The licensee shall supply the customer with the telephone number of the fault reporting centre to which faults should be reported. The following information should be requested from a customer reporting a fault; customer's name; telephone number (if any); physical address; and the nature of the fault. Pole number and site identity should also be reported where the physical address is not formal.

The licensee shall give the reporting customer a fault reference number.

#### 4.5.3 Restoration of supply after forced interruptions

There is a need to classify each fault/customer in an emergency priority list (EPL) which dictates the order in which supply after each forced interruption is restored. An example of an EPL is illustrated in annex A. This priority list should be updated as required by the licensee.

After forced interruptions the supply should be restored as follows:

- a) 30 % within 1,5 h;
- b) 60 % within 3,5 h;
- c) 90 % within 7,5 h; and
- d) 98 % within 24 h.

The above represents the worst case scenario and should be improved upon whenever circumstances permit.

NOTE The number of forced interruptions is considered a quality-of-supply issue (see NRS 048-2).

Customers who require improved continuity of supply (for example large customers) could negotiate additional feeders. This would be the subject of a separate agreement.

#### **4.5.4 Number and duration of planned interruptions**

The licensee shall endeavour to keep supply interruptions to an absolute minimum and, in the case of planned interruptions, shall, except under exceptional circumstances, ensure that customers are given adequate notice.

The requirements for planned interruptions as set out in table B.1 of annex B shall be met with regard to at least 95 % of the customers. Planned interruptions that are negotiated with the customers should not be counted.

Where a customer or a group of customers has suffered a series of interruptions within a short period, the licensee shall endeavour to prevent coincident planned interruptions from affecting the same customer(s) for at least two months, with the understanding that urgent remedial work might require a planned interruption to rectify the cause of such a series of interruptions.

#### **4.5.5 Notice of planned interruptions**

Where possible, at least 48 hours advance notification should be given of any planned interruption. Details of such notification are given in 4.5.6.

The licensee may choose to give certain customers on the EPL more than 48 hours notification and may even decide to notify these customers personally.

In the case of large customers, wherever possible, the licensee and customers should mutually agree on planned interruptions.

The target average percentage success is at least 95 %.

#### **4.5.6 Press/media releases**

The licensee should make use of the appropriate media to inform its customers of future major interruptions. The following information should be supplied:

- a) the time that the interruption(s) will occur or is/are planned to occur;
- b) the area(s) that will be affected;
- c) the nature of the problem, or the reason for the planned interruption;
- d) the action that will be taken to restore the supply or to minimize disruption;
- e) the time at which it is anticipated that the supply will be restored; and
- f) notification that customers are to treat the supply as live at all times.

The licensee may also choose to make use of the appropriate media to inform its customers of the reason for any previous forced interruptions.

### **4.6 Customer complaints, enquiries and requests**

#### **4.6.1 Service activities for customer complaints, enquiries and requests**

The management of the following service activities influences the quality of service in dealing with customer complaints, enquiries and requests:

- a) availability and location of service centres;
- b) telephone services;
- c) response times; and
- d) time taken to resolve problems.

The service activities for measuring and reporting on customer complaints, enquiries and requests are given in table 5.

**Table 5 – Service activities for customer complaints, enquiries and requests**

1	2	3	4
Service activity	Measure of service standard	Minimum standard	Reporting format
Customer complaints	Time to respond and resolve	See 4.6.2	See 4.6.1 of NRS 047-2
Customer enquiries	Time to respond and resolve	See 4.6.3	See 4.6.2 of NRS 047-2
Customer requests	Time to respond and resolve	See 4.6.4	See 4.6.3 of NRS 047-2

#### 4.6.2 Customer complaints

Ideally, 90 % of general complaints received telephonically or in person should be handled on a one-stop basis without referral.

Written customer complaints should be responded to in writing within two working days and the problem should be resolved within two weeks.

The target percentage success is at least 95 %.

For complaints related to the quality of supply, 4.8 applies.

#### 4.6.3 Customer enquiries

Ideally, 90 % of enquiries for information and advice received telephonically or in person should be handled on a one-stop basis without referral.

Where investigative work is required, at least 95 % of telephonic queries or queries received in person should be responded to within five working days.

Written queries should be responded to within five working days. The target percentage success is at least 95 %.

Queries should normally be resolved within three weeks. The target percentage success is at least 95 %.

Meter queries are covered in 4.3.10 and 4.4.5.

Account queries are covered in 4.3.8.

#### 4.6.4 Customer requests

All general customer requests (for example moving of meters, moving of street lighting, changing of meters and changing of tariffs) should be replied to in writing by the licensee within two weeks of receipt of a written request. The reply should include information on the cost to the customer, the customer's obligations and the time frame for the carrying out of the request.

The target percentage success is at least 95 %.

For network alterations, 4.2.2b) and 4.2.3b) apply.

Provision of supply is covered in 4.2.

## 4.7 Telephone services

### 4.7.1 Service activities for telephone services

The management of the following service activities influences the quality of service in dealing with telephone services:

- a) provision of telephone services;
- b) business hours;
- c) telephone answering response times;
- d) duration of calls; and
- e) management of telephone answering centres.

The service activities for measuring and reporting on telephone services are given in table 6.

**Table 6 – Service activities for telephone services**

1	2	3	4
Service activity	Measure of service standard	Minimum standard	Reporting format
Essential telephone services	Provision of essential telephone services	See 4.7.2	See 4.7.1 of NRS 047-2
Specific telephone services	Provision and performance of specific telephone services	See 4.7.3	See 4.7.2 of NRS 047-2
Call handling	Response and talk times	See 4.7.4	See 4.7.3 of NRS 047-2

The equipment for measuring the service activities in 4.7.3 and 4.7.4 might not be generally available; therefore utilities should regard these standards as goals to be achieved in the future.

Guidelines are included in annex C to help the licensees manage the telephone centres.

### 4.7.2 Provision of essential telephone services

A 24 h telephone service shall be provided for the reporting of faults and emergencies.

The licensee shall provide a telephone service for complaints, requests and queries. This service shall be available during normal office hours.

### 4.7.3 Provision and performance of specific telephone services

The licensee should ideally provide the telephone services and the performance standards stipulated in table 7.

**Table 7 – Performance standards for specific telephone services**

1	2
Service	Performance standard
Information requests	At least 90 % of queries handled on a one-stop basis without referral
Payments	100 % of payments handled on a one-stop basis without referral
Reports of faults	100 % of fault reports not resolved telephonically are referred to the dispatcher as part of the customer contact
Claims	100 % of all claims referred to responsible person as part of the customer contact
General complaints	At least 90 % of general complaints handled on a one-stop basis without referral
Meter readings	100 % of all meter readings recorded accurately and allocated to correct point of delivery
Emergency reports	100 % of all emergency reports acted on immediately

#### 4.7.4 Call handling

The recommended performance standards for the telephone services are

- a) 85 % of incoming calls should be responded to within 15 s,
- b) the average response time should be shorter than 10 s,
- c) the lost call rate should be less than 2 %,
- d) 90 % of all incoming calls should be dealt with within 5 min,
- e) referrals should be a maximum of 10 % of calls where a one-stop service is a possibility,
- f) 90 % of misdirected calls should be closed within 30 s, and
- g) the availability of the fault and emergency services should be better than 1 h downtime per year.

#### 4.8 Non-compliance with NRS 048-2

The management of the following service activities influences the quality of service in dealing with NRS 048-2 quality-of-supply parameters:

- a) time to respond to a complaint received from a customer;
- b) negotiation of a time span to resolve the problem; and
- c) adherence to the time span in resolving the problem.

The service activities for measuring and reporting on NRS 048-2 quality-of-supply parameters are given in table 8.

**Table 8 – Service activities for non-compliance with NRS 048-2**

1	2	3	4
Service activity	Measure of service standard	Minimum standard	Reporting format
NRS 048-2 complaints	Time to resolve the problem	See 4.8	See 4.8 of NRS 047-2
Forced interruptions	Duration of forced interruptions	See 4.5.3	See 4.5.3 of NRS 047-2
Planned interruptions	Number and duration of planned interruptions	See 4.5.4	See 4.5.4 of NRS 047-2

The licensee shall correct NRS 048-2 quality-of-supply complaints within the time span negotiated with the customer.

The target percentage success is at least 95 %.

NOTE 1 The licensee should consider the nature of the fault in negotiating the time span with the customer.

NOTE 2 In the event that the quality-of-supply complaint cannot be resolved by the licensee and the customer, and the NER becomes involved, guidelines are given in NRS 048-1.

## 4.9 Customer education and customer forums

**4.9.1** General customer education is encouraged. A utility shall demonstrate that it has used whatever means deemed necessary or appropriate (or both) for the specific target audience to effectively communicate the mandatory information contained in NRS 047 (all parts).

### 4.9.2 Components of a customer education programme

#### 4.9.2.1 National level (collaborative)

##### 4.9.2.1.1 Safety issues

The following topics shall be addressed:

- a) the safe use of electricity;
- b) the dangers of illegal connections and tampering;
- c) the dangers of incompetent/unqualified persons conducting illegal/unsafe connections;
- d) reconnections, modifications, repairs, etc.;
- e) the use of unauthorized/unsafe devices; and
- f) protection against overvoltages.

##### 4.9.2.1.2 The reasons for, and the culture of paying for electricity

The following topics shall be addressed:

- a) a customer that is legally connected shall not redistribute electricity without complying with the by-laws or contractual constraints and the legal implications thereof;
- b) the issue of cross-subsidization of non-payers by paying customers;

- c) owners of rented properties shall ensure that all outstanding amounts are recovered from tenants;  
and
- d) efficient use of energy.

#### **4.9.2.1.3 Quality of supply (protecting against overvoltages)**

Customers' equipment will have a range of sensitivity to overvoltages. It is not usually practicable for the utility to provide surge protection at all points of supply, which will adequately protect all customers' equipment satisfactorily.

NOTE National (SANS) codes of practice to guide customers on this and other quality of supply issues are under consideration.

#### **4.9.2.2 Local level (utility-specific)**

Education on the following topics shall be conducted at a local/regional level:

- a) tariffs;
- b) utility processes:
  - 1 Management of disconnections.
  - 2 Reporting all defaulters – a process should be developed to facilitate this notwithstanding the need for confidentiality.
  - 3 Reporting of illegal connections.
- c) processes of interacting with the respective utility on services (this includes account enquiries, new service applications, etc.);
- d) bill content and queries pertaining to a bill; and
- e) utilities should ensure that the customers' rights were inherently protected by explaining/clarifying local by-laws where necessary.

#### **4.9.3 Customer forums**

Utilities shall demonstrate that they do have channels to address customer feedback.

In areas where an integrated development plan or any other equivalent communication structures exist, these shall be deemed as customer communication forums. Where such structures are not in place, the relevant utility shall facilitate the establishment thereof.

#### **4.10 Special services (optional)**

**4.10.1** The management of the following factors influences the quality of service in dealing with special services:

- a) types of special services provided; and
- b) response times in providing such special services.

**4.10.2** Apart from the key customer questionnaire (see 4.10 of NRS 047-2), the licensee is not expected to measure or report on special services.



**4.10.3** Special services could include

- a) the delivery, checking and determination of electricity consumption of domestic appliances,
- b) secure supply to community service centres,
- c) special arrangements to restore power after an interruption to customers who have life-support equipment such as kidney-dialysis machines,
- d) the provision of standby plants, and
- e) the classification of certain customers as key customers.

**4.10.4** Where required, standards for the quality of special services should be specified by the licensee in an agreement with the customer.

**4.10.5** A licensee could classify certain maximum demand customers as key customers. In this case, the licensee shall supply each key customer with details of a contact person/s or organization where the following quality-of-service activities could be addressed: interruptions, equipment maintenance, account queries, technical assistance and tariff negotiations. The licensee should ensure that at least 10 % of its key customers are requested to fill in the customer satisfaction questionnaire detailed in 4.10 of NRS 047-2. The customer satisfaction questionnaires that are completed and returned to the licensee should be included in the annual quality-of-service report to the NER.

**4.11 Management of disconnections**

Disconnections are part of a utility's normal ongoing business. The flow chart in figure 1 gives guidance on this issue.

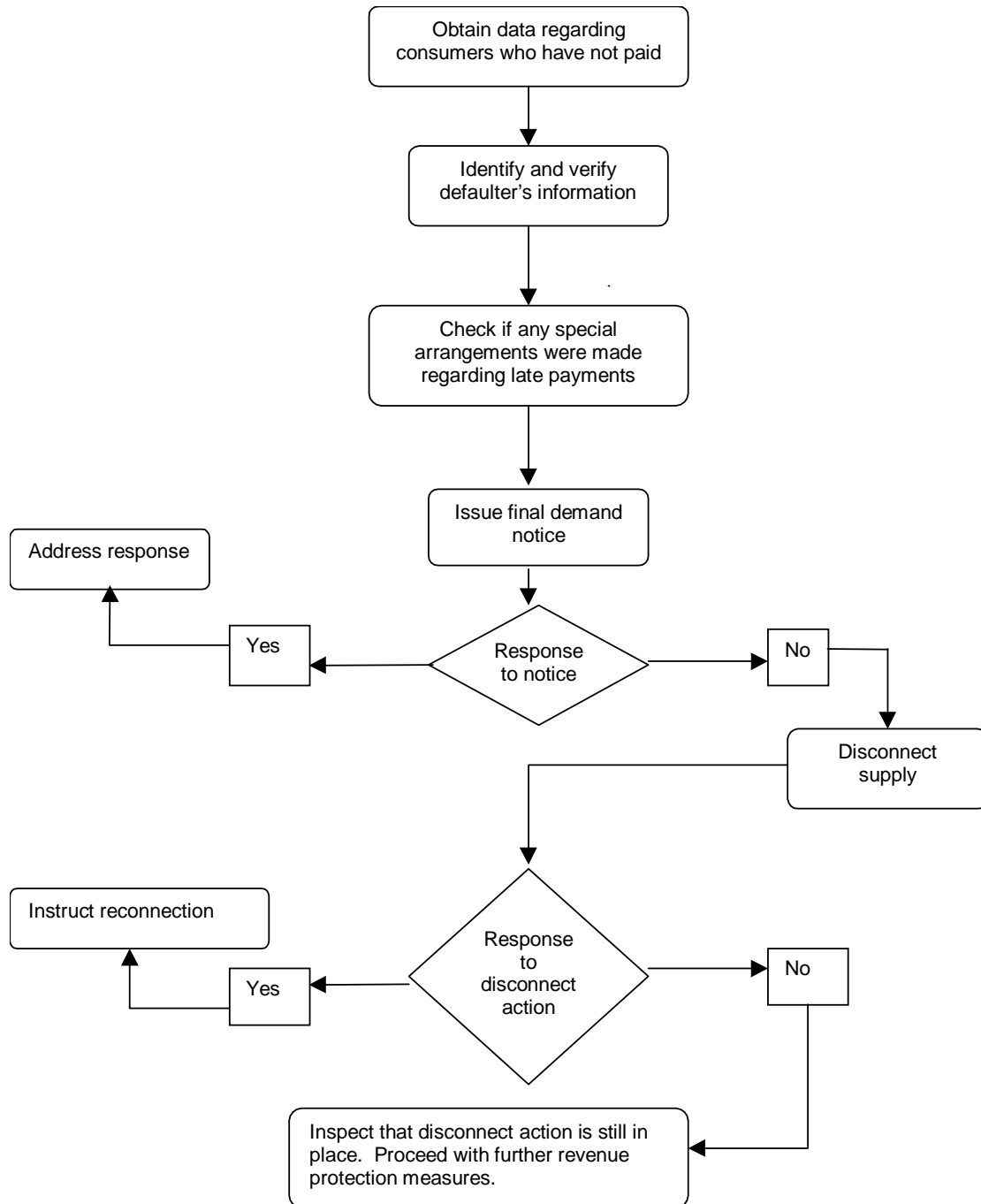


Figure 1 — Flow chart for the management of disconnections

## **Annex A**

(informative)

### **An example of an emergency priority list (EPL)**

An EPL could prioritize faults as follows:

- a) **Priority 1:** Faults at hospitals, clinics and emergency operating rooms, and faults at dwellings where life-support machines are used;
- b) **Priority 2:** Area faults (i.e. more than one customer affected) where most of the customers are industrial customers;
- c) **Priority 3:** Faults that affect large industrial customers (more than 10 MVA consumption);
- d) **Priority 4:** Area faults where most of the customers are residential customers;
- e) **Priority 5:** Faults that affect individual industrial customers; and
- f) **Priority 6:** Faults that affect rural customers.

## Annex B

(informative)

### Planned and forced interruptions according to NRS 048-2

NOTE Table B.1 includes information from NRS 048-2, in order to provide a complete picture of the expected number and duration of both planned and forced interruptions for the defined categories of customer/network type.

**Table B.1 — Number and duration of planned and forced interruptions per year for single feeder supply network categories**

1	2	3	4	5	6	7	8	9
Category of network (see note 1)	Planned interruptions				Forced interruptions			
	Overhead distribution		Underground distribution		Overhead distribution		Underground distribution	
	Number	Total duration h	Number	Total duration h	Number	Total duration h	Number	Total duration h
Residential established	2	6	1 every 2 years	6 every 2 years	6	12	4	12
Residential developing	3	6	1	6	10	20	4	30
Commercial/small-to-medium industrial	2	6	1 every 2 years	6 every 2 years	6	10	2	10
Rural overhead ( $\leq 22$ kV)			N/A	N/A	60	200	N/A	N/A

NOTE 1 For the purposes of this specification, the categories listed in column 1 are categories of network, not of customer (for example, a customer operating a commercial enterprise could be located in an area that has been designed to serve residential customers).

NOTE 2 The numbers and durations for overhead distribution assume bare conductors. These figures will also apply when aerial bundled conductors (ABC) are being assessed but, in general, better performance could be expected from ABC systems.

NOTE 3 Short-term interruptions owing to auto-recloser operation should be excluded from the number of forced interruptions allowed in developing residential areas and on rural overhead systems.

NOTE 4 A simple test can be used to determine whether an interruption should be classified as forced or planned (see 3.1.3 and 3.1.6 for definitions of a forced interruption and a planned interruption). If it is possible to defer the interruption when such deferment is desirable, the interruption is a planned interruption; otherwise, the interruption is a forced one. Deferring an interruption might be desirable, for example, to prevent overload of facilities.

NOTE 5 A mixed overhead and underground network should be regarded as an overhead network for the purpose of determining the allowed number of forced or planned interruptions.

## **Annex C** (informative)

### **Guidelines on managing telephone centres**

#### **C.1 Operating principles**

The following operating principles apply:

- a) employees should receive comprehensive training before going live;
- b) continuous, ongoing employee training should be provided;
- c) most employees are generalists and handle all types of calls;
- d) the generalist employees are backed up by one or more specialists;
- e) one national telephone number (preferably toll free) for customer service contact;
- f) disaster recovery plans to cover all eventualities to limit potential downtime to an absolute minimum;
- g) use of sophisticated forward planning techniques to determine optimum staffing levels, catering for forecasted business cycles;
- h) minimal paperwork;
- i) information is available and communicated to other areas electronically;
- j) use of technology such as automated call distribution, computer/telephone integration and interactive voice response to enhance customer responsiveness and telephone centre efficiency;
- k) telephone centres should have very strong information/communication links with the dispatching function;
- l) customer contact interaction details are available from the telephone centre's database to customer service managers and to service interface people, on a log-in basis;
- m) some service people (for example service reps) could use the telephone centre as a backup resource (HelpLine);
- n) standard greetings and scripting will provide consistency of standards and image; and
- o) the on-site information technology and human resource support and operations managers of the local telephone centre are represented on the divisional management team.

**Annex C**  
(concluded)

**C.2 Policies**

Telephone centre employees are

- a) authorized according to their competencies to provide specific categories of service to customers,
- b) authorized to negotiate and extend credit to customers within specified limits,
- c) authorized to accept credit card payments and arrange Automatic Clearing Bureau facilities on customer request,
- d) required to adhere to generally accepted accounting practice and audit/segregation-of-duties requirements in respect of the payment receipting portion of their role,
- e) authorized to accept telephonic meter readings from customers,
- f) authorized to add, change and delete customer personal details within defined parameters,
- g) authorized to add, change and delete customer interaction history within defined parameters,
- h) authorized to add, change and delete customer agreement details within defined parameters,
- i) authorized to commit licensees to performing within defined performance standards, and
- j) to ensure that all customer interaction details will be fully updated on the system prior to closing or suspending the contact.

NOTE The changing of customer details should only be done with the customer's approval.

## Bibliography

NRS 048-1:1996, *Electricity supply — Quality of supply — Part 1: Overview of implementation of standards and procedures.*

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