



SUBMISSION TO NERSA

**NOTIFIED MAXIMUM DEMAND
AND MAXIMUM EXPORT
CAPACITY RULES**

JULY 2015

Executive summary

Nersa is requested to approve the revision of the Eskom notified maximum demand (NMD) rules to include the maximum export capacity (MEC) rules. The current NMD rules as approved in 2009 have been revised to provide for generator connections and in general to provide greater clarity on certain aspects of the original document. There are no changes in terms of the application of the rules for load customers i.e. revision 2 of the NMD rules dated 2009.

The updated NMD and MEC rules include the following changes:

- (1) Revision of the NMD rules to introduce principles applicable to the generators in terms of the following:
 - a) Initial selection of the NMD and/or MEC
 - b) Notification of demand for customers with own generation, active load control, power factor correction equipment, and the appropriate level of export capacity
 - c) Notification of demand for load customers receiving the benefit of diversity
 - d) Changes in NMD (not utilised capacity) and/or MEC
 - e) Increases in NMD and/or MEC
 - f) Temporary increases in NMD and/or MEC agreed to in advance
 - g) Reductions in NMD and/or MEC
 - h) Implications of exceeding the NMD and/or MEC
 - i) Exemptions for exceedance of the NMD and/or MEC
- (2) Inclusion of a new section dealing with MEC rules applicable to generator customers as follows:
 - a) The MEC is used to determine the network capacity charges (NCCs) as well as the excess network capacity charges (E-NCCs).
 - b) The monthly MEC, expressed in kW, is defined as the higher of:
 - the agreed (that is, contractual) MEC; or
 - the maximum half-hourly demand (MD) measured in any time-of-use period during a single billing period (that is, a month).
 - c) If the generator exceeds the MEC, except for when a customer is exempted, charges will be raised for the excess MEC at the network capacity charge for generators.
 - While medium-voltage generators and transmission-connected generators connected in the Cape and Karoo are not liable for network capacity charges, charges will be raised for maximum export capacity utilised in excess of the contractual MEC when either
 - the customer is granted a temporary MEC increase; or
 - the customer exceeds the agreed MEC levelthe charges applicable to the preceding or subsequent voltage or transmission zone for generators will be applicable.
 - d) When the MEC is exceeded and the losses charges are negative, the energy associated with the exceeded MEC will be ignored for the purpose of the calculation of the losses charges.
 - e) Where network charges are zero or negative, the excess network charges will be based on the next highest charge.
 - f) The excess MEC will only be chargeable for the billing period in which the exceedance occurs.
- (3) Inclusion of clauses that cater for customers who are both a consumer and a generator:
 - a) The customer shall be required to individually provide notification regarding the NMD and the MEC.
 - b) Any exceedance registered for customers that are both consuming and generating energy at the same point of supply shall be based on the measured

actual demand registered for both consumption and generation at the point of supply.

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1. Background

The NMD is the contractual value that the customer requests and Eskom agrees to reserve in providing a supply. An exceedance of the NMD is a breach of the contract; that is, the customer is using capacity that he/she is not entitled to use or contracted for. Even though this is a breach of the contract, it is not normal practice to disconnect a customer for such a breach.

The NMD rules were approved by Nersa and first implemented in Eskom in 2005 in order to ensure that customers provided the correct notification of their demand. This was the first time that Eskom had introduced charges based on the NMD and not on actual demand. However, many customers had incorrect (too high or too low) NMDs, and in order to ensure that customers did not understate their NMD, the rules proposed that the charge would always be based on the higher of the NMD or the actual demand and that this value would apply for a rolling 12 months. The rules also incentivised customers to manage their actual demand to not exceed the NMD.

In 2009, the rules were again amended and approved by Nersa after consultation with customers. The 2005 version of the rules did not incentivise customers enough to provide correct notification, and they also did not cater for unforeseen exceedances. The rules proposed an increasing “exceedance” charge (the network capacity excess charge) for each event and also a 5% dead band where an exemption would be applied to the exceedance charge.

The NMD rules are a pricing signal for customers to notify their demand correctly. The NMD rules are part of Eskom’s schedule of standard prices.

Customers that do not notify their demand correctly or have no desire to do so will incur additional charges as exceedance of NMD without the network being sufficiently upgraded (which can only be done on application to increase the NMD) means that customers overload the network equipment, and this can lead to damage to plant, which Eskom is required to repair. It is not Eskom’s intention to raise any excess charges, but rather to send a signal to customers provide correct notification of their demand.

2. Motivation for updating the NMD rules

The objective of this submission is to update the 2009 NMD rules. The purpose of the NMD rules was to provide clear principles in terms of the following:

- a) Initial selection of the NMD
- b) Notification of demand for customers with own generation, active load control, power factor correction equipment, and the appropriate level of export capacity
- c) Notification of demand for load customers receiving the benefit of diversity
- d) Changes in NMD
- e) Increases in NMD
- f) Temporary increases in NMD agreed to in advance
- g) Reductions in NMD
- h) Implications of exceeding the NMD
- i) Exemptions for exceedance of the NMD

However, the current NMD rules are only applicable to the tariffs of large power load customers and do not cover generators.

In March 2012, Nersa published its Regulatory Rules on Network Charges for Third-party Transportation of Energy. In these rules, Nersa provided a framework on how use-of-system

charges had to be raised for generators. Eskom followed with proposed use-of-system charges for generators in its MYPD3 tariff application, which were approved by Nersa for implementation in April 2013. Eskom, however, delayed the implementation of use-of-system charges for generators until its application for the “Genflex” tariff and updating of the NMD rules to incorporate the MEC rules had been approved. Nersa published its approval of this application in December 2014, and Eskom introduced the use-of-system charges and the “Genflex” tariff at the beginning of its new financial year in April 2015.

To ensure the fairness and the equity tariff objective it was important to update the NMD rules to ensure that there was also a pricing signal when a generator exceeded the contracted MEC, as much as there was a signal when a load customer exceeded the contracted NMD.

The purpose of this submission is, therefore, to incorporate the maximum export capacity in the rules (applicable to generators), to rename the rules to the “NMD and MEC rules” in view of this and in general to provide greater clarity on some clauses.

The principles in the NMD rules for loads remain unchanged - as approved by Nersa in 2008. The rules have been reworked to clarify and reformat the principles to ensure that, where applicable, the principles can also apply to a generator.

3. Why it is important for customers to correctly notify their NMD and/or MEC

The NMD and MEC rules serve a specific purpose, that is, to maintain the integrity of the network and to promote a collaborative relationship with customers to ensure consciousness that network integrity needs to be everyone’s priority. Electricity is a national resource that is the engine of any economy; therefore, it is important that every individual who has access to this commodity partners with the utility to ensure that it is sustainable and operates efficiently and effectively. The NMD and MEC rules send a signal to do just that.

There are technical and financial reasons why it is important for the customer to provide correct notification of the NMD and/or MEC. These are discussed in the paragraphs that follow immediately below.

3.1. Technical reasons for correct notification of NMD and/or MEC

Eskom designs its networks based on current and anticipated loading on the networks. This is summarised as a network development plan (NDP), which is used as a reference point for every additional customer to be connected to the network and for network load growth forecasting. As a customer’s agreement (that is, electricity supply agreement or connection and use-of-system agreement) is a legally binding document, it is expected that each customer will notify Eskom of their reviewed capacity requirements, will abide by the allocated capacity, and will indicate, as provided for in his/her agreement, should there be any changes required.

Section 21(2) of the Electricity Regulation Act of 2006 states that a licensee may not discriminate between customers or classes of customers regarding access, tariffs, prices, and conditions of service, except for objectively justifiable and identifiable differences approved by the Regulator.

A customer who uses well above the allocated capacity as provided for in terms of his/her agreement may unnecessarily restrict the connection of additional customers to the network, since the customer uses capacity that would have been allocated to other customers, that is, customers who wish to upgrade their existing supply or new customers seeking to connect to the network. This, therefore, could result in the network provider being unable to commit or provide capacity as available in the network due to a single customer that is using more than his/her allocated capacity of the network. This creates an artificial unavailability of capacity

due to a customer that is not contracted to have that allocation. Other customers, therefore, are denied timeous connections, which could be detrimental to the economy, or alternatively, customers seeking supply may need to pay for uneconomic investments due to alternative line routing having to be planned owing to the artificial network unavailability. The same could prove true when a customer uses well below allocated capacity.

In addition, the networks could be unnecessarily overloaded, resulting in severe compromise of the lifespan of the network due to a customer utilising capacity outside the contracted capacity and it creates a safety risk to the network.

It is very important to note that any NMD/MEC exceedance needs to be analysed from a situational perspective. The prevailing system status, system constraint, and period of NMD/MEC exceedance will all have an influence on the outcome and perceived severity of an NMD/MEC exceedance. The NMD is also invariably a precursor of the designed capacity and, accordingly, the availability of the network in question.

The impact of an NMD exceedance may result in any one or a combination of the following outcomes, depending on the network configuration at the time:

1. The most significant impact is that the designed capacity of the network is exceeded. Typically, a large or municipal customer could have an NMD that matches the installed capacity of the network. If the NMD is exceeded, the following outcomes may be experienced:
 - a) Transformer capacity may be exceeded, thus leading to overloaded transformers. Depending on the magnitude, frequency, and duration of the exceedance, deterioration in the asset health of the transformer will be noticed.
 - b) Overloading of networks may lead to spurious tripping of equipment, thus affecting the overall quality of supply to the customer as well as affecting the duty cycle of equipment. This will require increased maintenance cycles and affect the lifespan of the equipment.
 - c) Overloaded networks may create unsafe conditions on overhead lines. Thermal overload conditions may lead to increased sagging of overhead conductors, thus compromising safe clearance conditions. It may also lead to voltage-related problems on the lines, thus affecting the expected regulatory requirements in terms of NRS 047 and NRS 048.
2. The n-1 integrity of transmission networks and premium supplies may be compromised by an NMD exceedance. This invariably results in contractual problems and may result in Grid Code violations (notably for customers fed directly from transmission substations).
3. The cumulative impact of NMD exceedance invariably has an impact on the system grid peak, thus requiring additional peak generation capacity at the time. This leads to increased generation costs and increased carbon emissions.

It is for the above technical reasons that the NMD and MEC rules are being introduced to promote this collaboration between customers and Eskom.

3.2. Financial reasons for correct notification of NMD and/or MEC

Eskom's revenue application includes budgeted investment in networks.

Customer's tariffs are increased as per the approved revenue based on fixed charges that can be recovered using the customers' contracted capacity or forecasted capacity. When a customer exceeds the NMD, this is distorted. The operating and maintenance costs are unnecessarily escalated and brought forward due to a single customer that is creating that cost.

It is also for this reason that the NMD and MEC rules are being introduced to promote this collaboration between customers and Eskom to eliminate the distortion of costs.

The NMD and MEC rules ensure that there is a pricing signal sent to the customer exceeding the allocated capacity to ensure that this customer engages in corrective behaviour to address non-compliance with the agreement signed with that customer.

4. Applicability of NMD and MEC rules

The NMD and MEC rules apply to all customers that have a measurable demand charge component in terms of their tariffs. These tariffs are:

- Megaflex;
- Miniflex;
- Nightsave (Large, Small and Rural); and
- Ruraflex.

Once this submission has been approved, the rules will also apply to the following tariffs available to generator customers and/or customers consuming and generating at the same point of supply (metering point):

Tariff	Description
Gen-DUOS (urban)	This is a use-of-system tariff for distribution-connected generators. The customers must be connected to an urban network.
Gen-DUOS (rural)	This is a use-of-system tariff for distribution-connected generators. The customers must be connected to a rural network.
Gen-TUOS	This is a use-of-system tariff for transmission-connected generators.
“Genflex” (Megaflex Gen and Ruraflex Gen)	This is a tariff for customers who consume and generate energy at the same point of supply connected to a distribution (urban or rural) network or transmission network.

Table 1: Generator tariffs

5. Revisions to NMD rules

The document is now called “NMD and MEC rules”.

The MEC rules have been incorporated in the existing NMD rules due the introduction of use-of-system charges for generators. These rules applicable to generators may be reviewed in future once more comprehensive customer data has been obtained – as was done with the initial NMD rules implemented in 2005.

The NMD and MEC rules consist of five sections and are subdivided as follows:

- a) Section 1 deals with the notification of demand for loads and generators.
- b) Section 2 deals with charges applicable to loads.
- c) Section 3 deals with charges applicable to generators.
- d) Section 4 deals with the application of NMD and MEC rules for customers that are both a load and a generator at the same point of supply (metering point).
- e) Section 5 deals with definitions and abbreviations.
- f) Section 6 deals with revisions

The reason for this structure of the document was to combine all the principles that were similar for both loads and generators and to keep separate all the principles that differed by applying the principles that dealt with a load or generator, or both. This was to allow for ease of reference for the users of the document.

The summarised changes to the updated rules are as below.

5.1. Revision of NMD rules to introduce principles in the NMD rules applicable to generators

As indicated above, there were principles in the previous NMD rules that had similar application when applied to generator customers. A deliberate effort was made to ensure that these were in one section of the documents, so as not to unnecessarily lengthen the document. These principles are in Section 1 of the document, which deals with notification of demand for loads and generators. These rules relate to the following:

- a) Initial selection of the NMD and/or MEC
- b) Notification of demand for customers with own generation, active load control, power factor correction equipment, and the appropriate level of export capacity
- c) Notification of demand for load customers receiving the benefit of diversity
- d) Changes in NMD (not UC) and/or MEC
- e) Increases in NMD and/or MEC
- f) Temporary increases in NMD and/or MEC agreed to in advance
- g) Reductions in NMD and/or MEC
- h) Implications of exceeding the NMD and/or MEC
- i) Exemptions for exceedance of the NMD and/or MEC

The principles for loads relating to NMD remain essentially unchanged by the incorporation of generators in the above subsections.

5.1.1. Inclusion of the maximum export capacity (MEC) rules

The context in which the MEC will be used is defined in the rules. The rules state the following in this regard:

- a) Section 3.1.1 states that the excess MEC will only be chargeable for the billing period in which the exceedance occurs.
- b) Section 3.1.2 states that the MEC is used to determine the network capacity charges (NCCs) as well as the excess NCCs.
- c) Section 3.1.3 states that the monthly maximum export capacity (MEC, expressed in kW) is defined as the higher of:
 - the agreed (that is, contractual) MEC; or
 - the maximum half-hourly demand (MD) measured in any time-of-use period during a single billing period (that is, a month).
- d) Section 3.1.4 states that if the generator exceeds the MEC (except for when a customer is exempted), charges will be raised for the excess MEC at the network capacity charge for generators.
- e) According to section 3.1.4.2, while medium-voltage generators and transmission-connected generators connected in the Cape and Karoo are not liable for network capacity charges, charges will be raised for maximum export capacity utilised in excess of the contractual MEC when either:
 - a customer is granted a temporary MEC increase; or
 - a customer exceeds the agreed MEC level,the charges applicable to the preceding or subsequent voltage or transmission zone for generators will be applicable.

- f) Section 3.2.3.1 states that when the MEC is exceeded and the losses charges are negative, the energy associated with the exceeded MEC will be ignored for the purpose of the calculation of the losses charges.
- g) Section 3.2.3.2 states that where network charges are zero or negative, the excess network charges will be based on the next highest charge.

Examples of the application of these charges for exceedance appear in paragraph 6.

5.1.2. Inclusion of clauses that cater for customers who are both a consumer and a generator

- a) The customer shall be required to individually provide notification of the NMD and the MEC.
- b) Any exceedance registered for customers who are both consuming and generating energy at the same point of supply shall be based on the measured actual demand registered for both consumption and generation at the point of supply.

6. Cost-benefit analysis

The excess network capacity charges serve as a pricing signal to ensure correct notification of demand by customers. There is, therefore, no intention for Eskom to raised excess charges Eskom offers customers several options once the contracted capacity has been exceeded. Eskom provides for exemptions in its Demand Exemption policy and procedure.

7. Customer remedies when exceeding NMD and/or MEC

When exceeding NMD and/or MEC, the customer does have a number of choices available to him/her that will assist the customer to avoid payment of excess energy charges:

1. Operate within the contracted NMD and/or MEC as required in terms of the customer's agreement.
2. Apply for a demand charge exemption in terms of the criteria and rules set out in terms of the demand charge exemption policy. The policy is applied specifically to extraordinary circumstances beyond a customer's control, for example, abnormal operations, load shedding, *force majeure*, etc. The process is that the customer must apply in writing and must provide the appropriate motivation in order to support the application. The brochure for circumstances under which exemptions will be considered is published on the Eskom website: www.eskom.co.za/tariffs.
3. Apply for an increased supply. This is subject to the following conditions:
 - a. The customer must apply in writing. Payment of excess network capacity charges does not imply that Eskom concedes to the customer using the additional capacity. A formal application in writing is required. The customer will be required to pay the connection charges as determined on application for Eskom to be able to process the customer's application.
 - b. The customer's account must not be in arrears. Where the customer's account is in arrears, there must be a payment arrangement in place and the customer must have demonstrated commitment in honouring the payments as per the payment arrangement. Eskom cannot increase its business risk by increasing capacity for a customer who is already in breach of the agreement signed with Eskom by defaulting on account payments and, where applicable, is also not committed to honouring the payment arrangement.
 - c. On application, the network must be able to provide the additional capacity required by the customer. Where the network is unable to provide the additional capacity required by the customer, Eskom will do one of the following:

- i. Request the customer to reduce utilised capacity up to and not beyond the contracted capacity until a date specified when capacity will be available.
- ii. Allow the customer, in terms of its demand charge exemption policy, a temporary increase while awaiting the full capacity required to be established. The temporary increase might not provide for the customer's requirement, but it assists the customer to have some additional capacity and, in doing so, provides relief in terms of the charges payable for the NMD and/or MEC.

8. Customer readiness and customer impact assessment tools

The proposed revision of the NMD rules was communicated as part of the 2015/16 retail tariff plan and as part of the "Genflex" submission. All generator connection and use of system agreements currently include reference to the NMD rules.

Eskom will provide tools for customers to assess the impact of the rules.

9. Conclusion

The Nersa approval of this submission on the NMD and MEC rules will facilitate the following:

- Incorporation of the MEC rules in the current NMD rules.
- Incorporation of rules for customers that are consuming and generating at the same point of supply.
- Implementation of the NMD and MEC rules once these rules have been approved.

Annexure 1: Definitions

Concept	Description
Distribution system	Means Eskom's network infrastructure, consisting of assets operated at a nominal voltage of 132 kV or less, not classified as transmission transformation equipment.
Excess network capacity charge (NCC) charges	The demand exceeding the NMD (in kVA), multiplied by the event number, multiplied by the NCC charge of the applicable tariff. Note: excess NCC is charged over and above the normal NCC charges that the customer is charged monthly based on the annual utilised capacity (AUC).
Generator	Means generation units owned by the customer and that are connected either directly to Eskom's distribution/transmission network via a substation or to the network of the customer.
High voltage	Networks that usually consist of equipment supplied at a voltage greater than 22 kV and that consist of the distribution substations and networks. A substation is considered an HV substation when the primary side of the substation is supplied at a voltage above 22 kV.
Load	Means a consumer of electricity supplied by Eskom.
Maximum export capacity	Means the maximum capacity measured in 30-minute integrating periods at the point(s) of supply for which notification has been provided by the customer and accepted by Eskom for the transmission of electrical energy between the facility and the distribution system.
Medium voltage	Networks that consist of networks above 1 kV up to 22 kV. Some rural networks with a voltage of 33 kV have been specifically designated by Eskom as rural reticulation networks. A substation is considered an MV substation when the primary side of the substation is supplied at a voltage less than, or equal to, 22 kV.
Network capacity charge (NCC)	(Previously known as the network access charge) means the R/kVA or R/POD fixed network charge raised to recover network costs and, depending on the tariff, is charged on the annual utilised capacity or maximum export capacity where maximum demand is measured or the NMD where maximum demand is not measured.
Notified maximum demand	Means the contracted maximum demand of which notification has been provided in writing by the customer and accepted by Eskom per POD/point of supply. Note: the notification of demand is governed by the NMD rules.
Transmission system	Means Eskom's electricity system, consisting of all lines and substation equipment, where the nominal voltage is above 132 kV or where the nominal voltage is lower than, or equal to, 132 kV and there are no distribution system assets.
Use-of-system charges	Means the network tariffs charged for making capacity available connecting to, and for the use of, the transmission and/or distribution system.

Annexure 2: Customer impacts- how the penalty structure in the NMD and MEC rules works

Customers are required to adhere to the agreed NMD and/or MEC and should not exceed it/them, unless Eskom has agreed to the exceedance in writing and in advance.

An exceedance of the NMD and/or MEC is a breach of Eskom's electricity supply agreement and/or connection and use-of-system agreement. Eskom may request the customer in breach of contract to remain within the contractual NMD. If the customer fails to heed this request, remedies may be implemented by Eskom to correct such breach, including the right to negotiate agreements, the right to limit the capacity to the NMD and/or MEC value, as well as raising excess NCC for loads and excess NCC charges for generators for the NMD and/or MEC exceeded.

Eskom reserves the right to limit the capacity to the NMD and/or MEC value where the customer is in breach of Eskom's electricity supply agreement and/or connection and use-of-system agreement due to non-payment.

Customer impact of NMD rules

The excess network capacity charges for loads are applied as follows:

- a) The excess network capacity charges are applicable to customers that are allocated to the tariffs indicated in paragraph 4.
- b) The excess network capacity charges are based on the sum of the charges applicable to network-related tariff components (that is, transmission network charges, distribution network access charges, and the low-voltage subsidy) as applicable to the customers' respective tariff.

To illustrate this, the examples below are provided.

The amount payable through the excess network capacity charge (E-NCC) in the event of an exceedance is calculated based on the number of times the NMD is exceeded, multiplied by the portion of the demand exceeding the NMD, multiplied by the sum of the distribution network capacity charge (Dx NCC), the transmission network capacity charge (Tx NCC), and, if applicable, the low-voltage subsidy charge for the respective tariffs.

The NMD rules and a modelling tool to calculate the impacts based on the latest rates can be found on the Tariffs and Charges website (www.eskom.co.za/tariffs).

In terms of the NMD rules, the following is taken into account when the NMD is exceeded:

- The **event number** is the number counted every time the NMD is exceeded (whether within or above the exceedance limit) based on a rolling 12 month period (that is, the previous 11 months from the current month).
- The **exceeded amount** is any demand (in kVA) recorded that is above the NMD.
- The **NCC charge** (normally a combination of the transmission and distribution NCCs and Low voltage subsidy, where applicable) is the R/kVA value charged per tariff; refer to the applicable tariffs for the NCC charge(s).

Formula:

Excess NCC charges (E-NCC) = demand exceeding the NMD (kVA) X event number X applicable tariff NCC charge.

Note: the E-NAC is charged over and above the normal NAC charges that the customer is charged based on the customer's annual utilised capacity (AUC).

The following customer information is used for this example:

- A customer on the Miniflex tariff, taking supply ≥ 66 kV & ≤ 132 kV, with a transmission zone greater than 300 km and less than 600 km, with an NMD of 200 kVA. The scenario looks at the customer's demand pattern over a "historical" 24-month period to demonstrate the rolling 12-month period.
- The figure below shows the customer's kVA profile over 24 months and compares the NMD, the 5% limit, the monthly utilised capacity (MUC), and the annual utilised capacity (AUC). The results sheet explains and compares the NMD, 5% limit, MUC, and AUC; that is, it explains the graph – how the customer is charged when the NMD, 5% limit, or previous AUC is exceeded in any given period.

Year	Month	NMD	MD	MUC	AUC	Exceedance limit (5% of NMD)	Event no.	ENCC	Exceeded (demand exceeding NMD) kVA	NCC (R/kVA) at 66 kV and 132 kV voltage, Tx Zone 2	LV charge (R/kVA)	*NCC charge (R/kVA) + LV subsidy charge	NCC (R)	Excess NCC charge (R)	Total NCC (R) payable	Comments
YEAR 1 (previous year)	Jan.	200	205	205	200	210	1	No	5	R9.75	R10.14	R19.89	R4 077	N/a	R4 077	First free event, no excess NCC, AUC not reset
	Feb.	200	180	200	200	210				R9.75	R10.14	R19.89	R3 978		R3 978	
	March	200	190	200	200	210				R9.75	R10.14	R19.89	R3 978		R3 978	
	April	200	210	210	200	210	2	No	10	R9.75	R10.14	R19.89	R4 177	N/a	R4 177	Second free event, no excess NCC, AUC not reset
	May	200	195	200	200	210				R9.75	R10.14	R19.89	R3 978		R3 978	
	June	200	180	200	200	210				R9.75	R10.14	R19.89	R3 978		R3 978	
	July	200	220	220	220	210	3	Yes	20	R9.75	R10.14	R19.89	R4 376	R1 193	R5 569	5% limit exceeded, third event, that is, NCC is 3 x exceeded kVA, AUC reset MD > previous UC
	Aug.	200	180	200	220	210				R9.75	R10.14	R19.89	R4 376		R4 376	
	Sept.	200	180	200	220	210				R9.75	R10.14	R19.89	R4 376		R4 376	
	Oct.	200	160	200	220	210				R9.75	R10.14	R19.89	R4 376		R4 376	
	Nov.	200	180	200	220	210				R9.75	R10.14	R19.89	R4 376		R4 376	
	Dec.	200	210	210	220	210	4	Yes	10	R9.75	R10.14	R19.89	R4 376	R796	R5 171	Within 5% limit, but fourth event, NCC is 4 x exceeded kVA, AUC not reset, MD < previous UC
YEAR 2 (current year)	Jan.	200	195	200	220	210				R9.75	R10.14	R19.89	R4 376		R4 376	
	Feb.	200	185	200	220	210				R9.75	R10.14	R19.89	R4 376		R4 376	
	March	200	190	200	220	210				R9.75	R10.14	R19.89	R4 376		R4 376	
	April	200	215	215	220	210	3	Yes	15	R9.75	R10.14	R19.89	R4 376	R895	R5 941	5% limit exceeded, NCC is 3 x exceeded kVA, AUC not reset, MD < previous UC, rolling 12 months has lapsed, third event in new year
	May	200	185	200	220	210				R9.75	R10.14	R22.42	R4 376		R4 376	
	June	200	180	200	220	210				R9.75	R10.14	R22.42	R4 376		R4 376	
	July	200	180	200	215	210				R9.75	R10.14	R22.42	R4 820		R4 820	12 months lapsed, AUC reset to the next highest maximum demand in the past 12 months, which is 215 kVA
	Aug.	200	180	200	215	210				R9.75	R10.14	R22.42	R4 820		R4 820	
	Sept.	200	150	200	215	210				R9.75	R10.14	R22.42	R4 820		R4 820	
	Oct.	200	160	200	215	210				R9.75	R10.14	R22.42	R4 820		R4 820	
	Nov.	200	180	200	215	210				R9.75	R10.14	R22.42	R4 820		R4 820	
	Dec.	200	190	200	215	210				R9.75	R10.14	R22.42	R4 820		R4 820	

Table 2: Example of excess NCC for a load customer

*This is the combined transmission and distribution network capacity charge.

Customer impact of MEC rules

The excess network capacity charges for generators are applied as follows:

- a) The excess network capacity charges are applicable to customers who are allocated to the tariffs indicated in paragraph 4.
- b) The excess network capacity charges are based on the charges applicable to a customer.
 - Section 3.2.3.1 states that when the MEC is exceeded and the losses charges are negative, the energy associated with the exceeded MEC will be ignored for the purpose of the calculation of the losses charges.
 - Section 3.2.3.2 states that where network charges are zero or negative, the excess network charges will be based on the next highest charge.

To illustrate this, the examples below are provided.

Example of Medium voltage connected customer MEC exceedance

	Value	Unit
Supply voltage	22	KV
Transmission zone	300	KM
MEC	2000	KW
Metered MEC	2200	KW
Chargeable MEC	200	KW
Energy produced- total	316800	
Energy produced- peak	126720	KWh
Energy produced- standard	126720	KWh
Energy produced- off-peak	63360	KWh
Network capacity charge applicable	R -	R/KW

Calculation of charges for exceedance registered

			Comments
KW by which MEC is exceeded	200	KW	
Rate applicable	R 11.44	R/KW	Based on the charge applicable for Dx connexed high voltage generators
Distribution losses charge (rebate)	R -	c/KWH	Not considered for exceeded MEC
Customer must pay as excess network capacity charge	R 2 288.00	R/KW	

Note:

The following must be noted:

- *Medium-voltage-connected customers usually do not pay network capacity charges. When a customer exceeds contracted MEC, however, the charge applicable to high-voltage supplies shall be payable.*
- *Distribution losses charges will not be considered for the calculation of this charge.*
- *Excess NCC charges are only raised on the month in which the exceedance is registered.*

Figure 1: Example of excess NCC where a generator customer is connected at medium voltage

Example of Transmission connected customers (Cape) MEC exceedance

	Value	Unit
Supply voltage	>132	KV
Transmission zone	Cape	KM
MEC	10 000	KW
Metered MEC	10 500	KW
Chargeable MEC	500	KW
Energy produced- total	1 512 000	
Energy produced- peak	604 800	KWh
Energy produced- standard	604 800	KWh
Energy produced- off-peak	302 400	KWh
Network capacity charge applicable	R -	R/KW

Calculation of charges for exceedance registered

			Comments
KW by which MEC is exceeded	500	KW	
Rate applicable	R 1.68	R/KW	Based on the charge applicable for Dx connected high voltage generators
Transmission losses charge	R -	c/KWH	How will energy produced through exceedance be excluded for the calculation of losses charge
Customer must pay as excess network capacity charge	R 840.00	R/KW	

Note:

The following must be noted:

- *Cape-connected generator customers usually do not pay network capacity charges. When a customer exceeds contracted MEC, however, the charge applicable to KZN shall be payable.*
- *This is the next applicable MEC charge and will, therefore, be applicable to the customer.*
- *Transmission losses charges will not be paid out for the additional energy produced as a result of the exceedance.*
- *Excess NCC charges are only raised on the month in which the exceedance is registered.*

Figure 2: Example of excess NCC where a generator customer is connected to the transmission network in the Cape