

# **ATTACHMENT 2**

## **APPROVED GRID CODE EXEMPTIONS**

**MAY 2005**

<b>NETWORK CODE: (ESKOM GENERATION EXEMPTIONS)</b>				
	<b>Requirement</b>	<b>Comments</b>	<b>Stations Requesting Exemptions</b>	<b>Exemption expiry date</b>
3.1.1	Deleted (2005/05)			
3.1.1	Main & Backup Protection & Loss of Field Protection	Facility not available.	Koeberg	2005/12
3.1.1	Back Up Impedance	No fuse fail interlocking.	Lethabo	2005/12
3.1.1.7	Trip to House Load	Facility not available. This is not considered as being of any value to the customer.	Acacia Port Rex Gariiep Drakensberg Van Der Kloof Palmiet Kriel Arnot Kendal Koeberg Majuba Matla Tutuka Matimba	Permanent
3.1.1	Unit switch onto standstill protection	Facility not available	Matimba Kriel	2009/12
3.1.2	Ability to Island	Some of the units can Island but not reliably (Arnot, Camden, Grootvlei, Hendrina, Komati, Kriel, Matla). Limited Islanding capability will be maintained at the above stations but no testing will be done.	Acacia Port Rex Gariiep Drakensberg Van Der Kloof Palmiet Kriel Grootvlei	Permanent (7 stations)

		Tutuka, Duvha and Majuba units 4, 5 & 6 can in principle island. However, the turbine blading problem currently limits this ability. Temporary exemption requested for these units until further investigations are completed.	Komati Camden Matla Hendrina Arnot  Duvha Tutuka Majuba	2006/12 (3 stations)
3.1.3(7)	Deleted (2005/05)			
3.1.3 & 4-46	Excitation System Requirements & Testing (3.1.3/4-46)	Research and development work completed to do this work. Tests are only done during outages and this could delay implementation even at high priority stations by up to 5 years.	All Eskom Generation Stations	2009/12
3.1.4	Reactive Power Capabilities		All Eskom Generation Stations	2005/12 – Section to be Redrafted
3.1.6.3/4	Governing Over frequency Protection	Station do not have the ability Temporary exemption due to outage constraints	Palmiet Camden Duvha Arnot Koeberg Matimba Hendrina Matla Kendal Lethabo Duvha	2009/12
3.1.6.7	Governing Dead Band			2009/12
3.1.6. GCR6	Governing Primary frequency control	Unable to comply	Koeberg	Permanent

	(>50.2)			
3.1.8(1)	Black Starting Testing	Current configuration requires the shut-down of 4 units.	Kendal	2005/12 – comply with redrafted code
A2.3.8	Black Starting	Kendal is not able to synchronise within 1 hour.	Kendal	2005/12 – comply with redrafted code
3.1.9	External Supply Disturbance	Plant limitation	Koeberg Kriel	Permanent 2009/12
3.1.10	Deleted (2005/05)			
3.1.14.3	Compliance Testing	NNR limitations	Koeberg	Permanent
A.2.3.2	Load Rejection Tests	Facility not available	Acacia Drakensberg Gariep Palmiet Port Rex Van Der Kloof	Permanent
3.1.11	Emergency Reserve EL1 & EL2 operation	Operation not permitted Not capable	Koeberg Hendrina Kriel	Permanent Permanent

<b>INFORMATION EXCHANGE CODE: (ESKOM GENERATION EXEMPTIONS)</b>				
<b>#</b>	<b>Requirement</b>	<b>Comments</b>	<b>Stations Requesting Exemptions</b>	<b>Exemption expiry date</b>
App. 3 (also referenced in the Network Code, 3.1.1.4)	Protection Setting & Excitation Setting Documentation (AVR).	Power Stations do not comply; studies still have to be completed by TSI. Approximately 6 yrs to comply.	All Eskom Generation Stations	2009/12
App. 5C (Also System Operation Code 4.5)	Automatic Generator Control	Station not equipped.	Koeberg	Permanent

<b>SYSTEM OPERATIONS CODE: (ESKOM GENERATION EXEMPTIONS)</b>				
<b>#</b>	<b>Requirement</b>	<b>Comments</b>	<b>Stations Requesting Exemptions</b>	<b>Exemption expiry date</b>
2.1.1	Regulation & Load Following	Facility not available.	Hendrina	Permanent
Appendix 5C	Gen Breaker Position Indication	Facility not available.	Koeberg	2005/12

<b>SYSTEM OPERATIONS CODE: (ESKOM TRANSMISSION EXEMPTIONS)</b>				
<b>#</b>	<b>Requirement</b>	<b>Comments</b>	<b>Type of Constraint</b>	<b>Exemption expiry date</b>
2.1.2(2)	Deleted (2004/12)			
4. (5)	The System Operator shall state opportunities for the provision of ancillary services as described in the Network Code, section 7.4.	An internal (Eskom) process exists for annual statement of requirements. The external process will be launched with the introduction of the SA electricity market.	People resources Time to develop information systems and processes	2005/12
4.2 (2)	The System Operator shall certify units capable of islanding.	See also 4. (2). Contracts for services exist currently but no certification due to complexity of problem.	People resources Time to develop information systems and processes	2005/12, pending islanding redrafting
4.2 (4)	The System Operator shall determine the minimum requirements for each black start supplier and ensure that the contracted suppliers are capable of providing the service.	Current contracts exist for services but does not ensure that provider is capable of delivering service. This requires industry co-operation to test effectively. The Grid Code needs to ensure that this test is enforceable.	People resources Time to develop information systems and processes	2005/12
11 (5)	Deleted (2004/12)			
15.4 (7)	The System Operator shall provide forecasting of demand for the next day, the next 7 days (daily) and the next 12 months (weekly).	7 days rolling being done. However 12 months rolling is a new function.	People resources. Time to develop systems & processes.	2005/12

16. (6)	The System Operator shall annually publish expected fault levels, including the rupturing capacity of relevant NTC equipment, for each point of supply.	Not published annually but calculated regularly.	People resources Time to develop systems and processes.	2005/12
17.	Where tele - control facilities are shared between the System Operator and other participants, the System Operator shall ensure that operating procedures are established in consultation with the participants.	OP has to be developed.	Time to develop systems processes and enhance contracts	2005/12

<b>NETWORK CODE (ESKOM TRANSMISSION EXEMPTIONS)</b>				
<b>#</b>	<b>Requirement</b>	<b>Comments</b>	<b>Type of Constraint</b>	<b>Exemption expiry date</b>
3.1.3 (4)	The System Operator shall determine the settings of the excitation system in consultation with each generator. These settings shall be documented, with the controlled copy held by the System Operator. The generators shall control all other copies. The procedure for this is shown in Appendix 2, A2.3.3.	The extent of the availability of documentation will need to be established and missing documentation rebuilt.  The SO will need to build the capability to determine the settings, as it is currently performed by the TSI.	People resources, skilled analysts  Time to develop systems and processes	2005/12
3.1.6 (2)	System frequency variations.	Does not align with NRS 048.  SO not in position to approve tripping times.	Skilled Analysts.  Time to establish gaps and to ensure consistency.	2005/12 - comply with redrafted code  2005/12 - comply with redrafted code
3.1.10	Voltage regulation at point of connection	Need for on load tap changers are current under review on Unit transformers.	Skilled Analysts  Time to establish gaps and to ensure consistency	2005/12 – comply with redrafted code
4.4	Standard busbar arrangements and security criteria pg 20.	At present it seems that some of the substations are over designed as they provide double busbar selection and a circuit breaker bypass facility even on	People Resources, Skilled Analysts, systems.	2006/12



		132kV level, which according to the grid code may not be necessary, except for higher voltage levels. Reliability software and skills need to be attained and developed to determine the change of design on the quality of supply.		
5.3 (2)	Reports on protection operating.	Not all protection operations are investigated. We will not be able to give customers reports on protection operations except when this may have caused an interruption. A record is kept of every protection operation on the grid in the TIPPS database. Reports are not generated on every protection operation.	Time to establish gaps and to ensure consistency.  Information systems, Skilled analysts.  Customer Interface.	2006/12
7.4	TS development plan pg 30	The April date does not conform to current process. The plan at present does not include costs. Annual public forums to disseminate the intended TS development plan have yet to be organised with the NER. Clarification is required on the extent of the consultative process.	People Resources, Skilled Analysts, Customer interface.  Cost, time to establish gaps and then to ensure compliance.	Costs of plans exempted until 2007/12

<b>INFORMATION EXCHANGE CODE: (ESKOM TRANSMISSION EXEMPTIONS)</b>				
<b>#</b>	<b>Requirement</b>	<b>Comments</b>	<b>Type of Constraint</b>	<b>Exemption expiry date</b>
3.10	System planning information pg 5 "The TNSP shall provide the generators with a monthly rolling maintenance schedule for a period of one year in advance."	This may still require facilitation. Currently done by Generation division.	People Resources, Skilled Analysts, Customer interface. Cost, time to establish gaps and then to ensure compliance.	2005/12 – comply with redrafted code
4.6 (1)	The minimum communication facilities for voice and data that are to be installed and maintained between the System Operator and participants shall comply with the applicable IEC standards for SCADA & communications equipment.	This facility will become available with the introduction of the new EMS. The communication refers to the direct voice lines available between the control centres.	Cost, practicality of current implementation as the new system will only be installed in 2007	2007/06
4.7.1 (1)	The System Operator shall agree with participants the procedures governing security and access to the participants' SCADA, computer and communications equipment. The procedures shall allow for adequate access to the equipment and information by	Not with all the participants. Currently only discussed with Distribution Division.	People resources, skilled analysts. Time to develop systems and processes.	2005/12

	the System Operator or its nominated representative for purposes of maintenance, repair, testing and the taking of readings.			
4.7.2	All information exchange shall be GPS satellite time signal referenced. The System Operator shall ensure broadcasting of the standard time to relevant telecommunications devices in order to maintain time coherence.	Needs to be rolled out as a project.	Time to develop systems and processes.	2006/12 pending cost estimates
4.8 (1)	The obligation for data storage and archiving shall lie with the information owner.	Some information is being stored and archived, e.g. ancillary services info, post disturbance info. This needs to be documented.  Internally limited records are held by different divisions.	Cost, information systems, time to implement	2007/06
4.8 (3)	All the systems must be able to be audited by the NER. The systems must provide for clear and accessible audit trails on all relevant operational transactions. All requests that require an audit on a system shall be undertaken with reasonable notice to the parties.	The new EMS will facilitate auditability of data.  Some systems are audited for data integrity by the Eskom auditing function.	Cost, information systems, audit processes, people resources.	2007/06
4.8 (4)	The information owner shall keep all hard copy and/or paper-based information for a period of at least five (5) years (unless	What data needs to be stored?  Internal to Eskom limited records are held by different divisions.	Information systems, people resources, IT service levels.	2007/06

	otherwise specified in the Grid Code) commencing from the date the information was created.		Time to implement.	
4.8 (5)	Parties shall ensure reasonable security against unauthorised access, use and loss of information (i.e. have a back-up strategy) for the systems that contain the information.	Information is reasonably secure from external to Eskom access point of view. Internal access security is not sufficiently tight.  Back-up system is in place for EMS and transaction exchange.	Information systems, people resources, IT service levels. Time to implement.	2007/06
4.8 (6)	Parties shall store planning information that is kept electronically for at least five (5) years or for the life of the plant or equipment concerned, whichever is the longer.	Clarification is required on the extent of information to be retained. What is meant by planning information?  Internally limited records are held by different divisions.	Information systems, people resources, IT service levels. Time to implement	2007/06
4.8 (7)	The System Operator shall archive operational information, in a historical repository sized for 3 years' data. This data includes: <ul style="list-style-type: none"> <li>• TS time-tagged status information, change of state alarms, and event messages</li> <li>• hourly scheduling and energy accounting information</li> <li>• operator entered data and actions.</li> </ul>	This will become possible with the introduction of the new EMS.  Data, such as operator entered data and alarms, is available on web and archived. Energy information is available from other sources.	Information systems, people resources, IT service levels. Time to implement	2007/12
4.8 (8)	An audit trail of all changes made to archived data should be maintained. This audit trail shall identify every change made, and the time and date of the change. The audit trail shall include both	This will become possible with the introduction of the new EMS and extensive modification will be required to comply with the existing systems.	Information systems, people resources, IT service levels. Time to	2007/12

	before and after values of all content and structure changes.	No changes are allowed on the current system due to hardware and software limitations.	implement	
5.3.4	Deleted (2004/12)			

<b>METERING CODE (ESKOM TRANSMISSION EXEMPTIONS)</b>				
<b>#</b>	<b>Requirement</b>	<b>Comments</b>	<b>Type of Constraint</b>	<b>Exemption expiry date</b>
3.2	Deleted (2004/12)			
5.2	The NTC shall connect a telecommunications medium to the meter/recorder that will allow for remote downloading of metering data.	All MTS metering points (with exception of Ingagane) have telecommunication system linking the master station directly to the meters.  Not all Power Station have capability to connect directly to the recorders.	Cost, time to establish gaps and then to ensure compliance.	2009/12 those points without
5.4	Meters shall be visible and accessible, but the access to such meters shall be authorised by the NTC.	Access to the meters is currently not recommended due to the security status of the meters. An upgrade to the current meters is required before the customer could be given remote access to the meters.	Cost, time to establish gaps and then to ensure compliance.	2005/12 – comply with redrafted code

5.5	The NTC shall provide historical metering data for customers on a secure server.	Historical data provision is too general, the information provision requirement will apply.  The challenge however is that the archives cannot be put online at this stage. No information is shared externally.	Cost, time to establish gaps & then to ensure compliance, info systems, people resources to service customer needs	2006/12
8.1	Deleted (2004/12)			
9.1	Deleted (2004/12)			
10.5	All security requirements for metering data shall be as specified in NRS 057.			2005/06

<b>TARIFF CODE (ESKOM TRANSMISSION EXEMPTIONS)</b>				
<b>#</b>	<b>Requirement</b>	<b>Comments</b>	<b>Type of Constraint</b>	<b>Exemption expiry date</b>
5(1)	The NTC shall annually publish a five-year rolling forward pricing curve for transmission tariffs based on the TS development plan as described in the Network Code, section 7.7.	The above pricing curve does not exist for Transmission.	People Resources, Skilled Analysts, Customer interface.  Cost, time to establish gaps and then to ensure compliance.	2005/12