

Distribution Grid Code Phase 2 Implementation Plan



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- Background
- Dx Code Development process
- Content of the Distribution Code
- Electricity Codes Governance Process
- Implementation plan
- Conclusion

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- **Main drivers: 1998 Energy White Paper & Electricity Regulation Act (2006)**
 - ESI reform in South Africa
 - Introduction of IPPs, REDs & Wholesale energy market
- **Current Tx & Dx Codes design attempt to achieve this vision**
- **NERSA is the codes administrative authority i.t.o the Act:**
 - Right to develop & enforce electricity industry codes
 - Approve all changes and exemptions to the codes

- **The Dx Code establishes reciprocal obligations of participants regarding the use, development & operation of the *Distribution System (DS)***
- **It ensures:**
 - Non-discriminatory access to the DS
 - Adherence to min. technical requirements for connection to the DS
 - System integrity & adequate service delivery
 - Clarifies accountabilities of all parties
 - Information availability

- **Provides a stable platform for the evolving ESI**
 - For example, introduction of REDs & Independent Power Producers
- **Sets foundation for future contractual arrangements**
- **Improved efficiency and transparency of service providers**
- **Harmonization of industry standards**
- **Improved regulatory measures**

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Dx Code Development process

- **Process took about 2 yrs (starting June 2005)**
- **Main participants:**
 - NERSA - Chair
 - AMEU (main representation: Ekurhuleni, eThekweni and Cape Town)
 - Energy Intensive User Group (EIUG) / Large Customers
 - Department of Minerals and Energy (DME)
 - Eskom (Distribution, Transmission and Generation)
 - System Operator (Secretariat)
 - Independent Power Producers (Kelvin Power station)
- **June 2007: Grid Code Advisory Committee accepted the Code for approval**
- **August 2007: Final version 5.1 approved by NERSA Board**

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GRID CODE

**DISTRIBUTION
CODE**

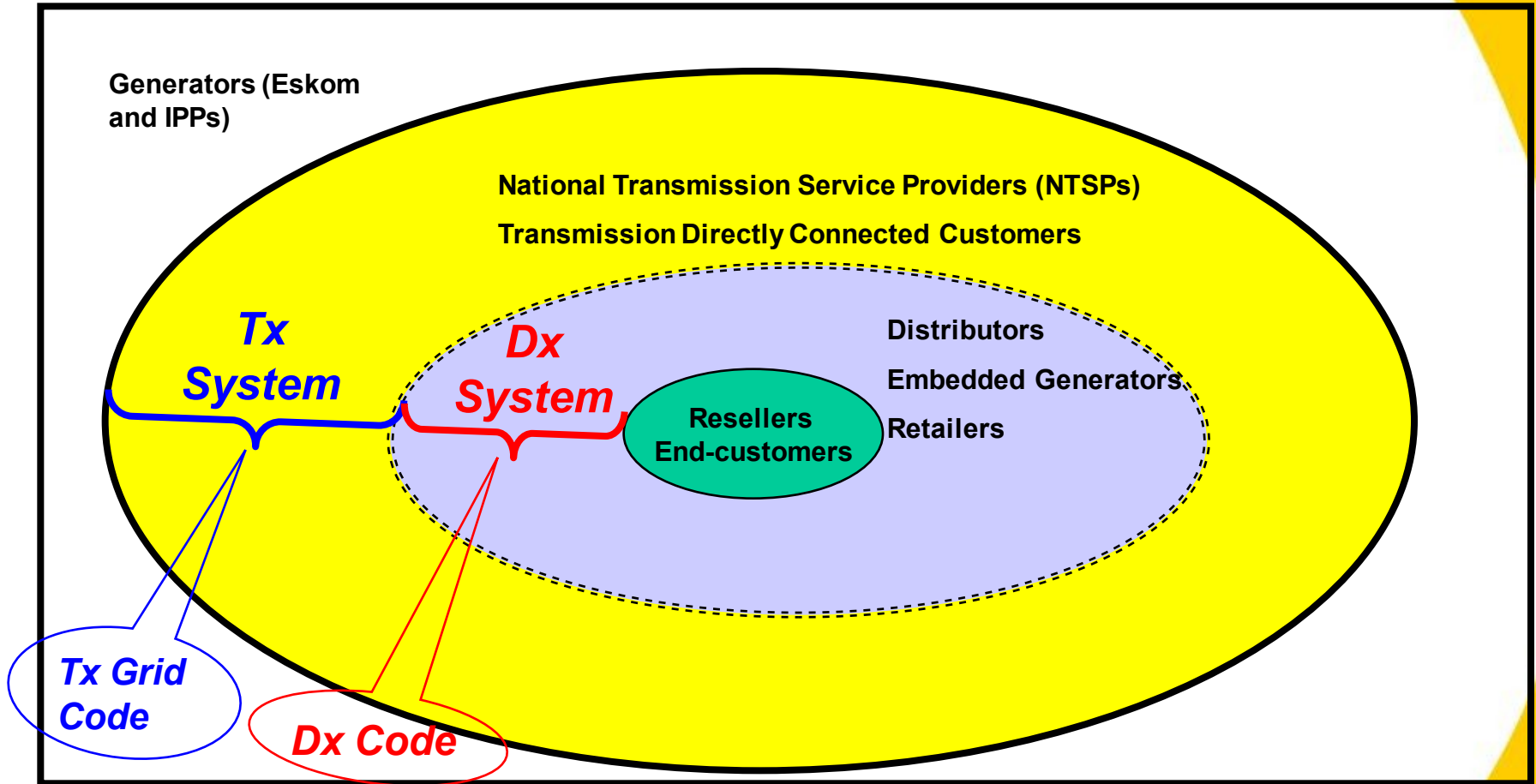
Accountability for:

Network Service
System Operation
Ancillary Services

Operations of:

Network Service
System Operations

Scope of Tx vs Dx Code



Tx Code

- Generators >20MVA)
- Gx: Providing ancillary services
- Dx: Connected to TS
- Directly connected customers
- Retailers / Traders for use of TS
- Tx network service providers
- System Operator
- AS providers (interruptible loads)

Dx Code

- Embedded generators
- Co-generators
- End-customers
- Retailers
- Resellers
- Distributors
- System Operator

- **Glossary of definitions**
- **Distribution Network Code**
- **Distribution System Operating Code**
- **Distribution Metering Code**
- **Distribution Tariff Code**
- **Distribution Info Exchange Code**
- **Code Governance**
 - **NERSA approved that current Tx Governance Code process shall apply whilst the Dx Governance Code is in draft stages**

Glossary (Code Definitions) Preamble Code

- **Contains all terms, acronyms and list of standards used in the Dx Code**

- **Describes:**
 - procedure/process for new connections (incl. sample application form)
 - set out the responsibilities of all parties regarding use and development of the Distribution Networks
 - Includes some embedded generation connection requirements.
- **Distributors' responsibilities:**
 - prepare “*customer connection information guide*”
 - Upon customer request, prepare “*offer to connect*” and ultimately “*connection agreement*”
 - advise potential *users* of the expected reliability on its network
 - conduct “*Distribution System impact assessment studies*”
 - compile a 10-year load forecast at each Dx incoming Point of Supply
 - publish 5-yr network development plan reviewed at least every 3 yrs
 - Comply with reliability indices set annually by NERSA

- **Customers' responsibilities:**
 - Provide safe access to Dx equipment within customers plant
 - Ensure equipment compatibility at the point of connection (incl. protection equipment)
 - Comply with QoS requirements as per NRS 048 & NERSA Power Quality Directives
 - **Customers > 100kVA → Power factor at least 0.9 lagging. No leading p.f.**
 - Earthing requirements as per NRS 076
 - Safeguard their equipment from faults on the DS
 - Maintain equipments at least in accordance with manufacturer's specifications

Network Code (cont.)

- **Network investment**
 - Least life-cycle cost investment criteria in line with NRS 048 & NERSA reliability requirements
 - Premium connection costs shall be borne by the requesting customer
 - Statutory investments will be based on predetermined criteria. Government requests to be considered if passed by legislature.
 - No cross-border subsidies shall apply for international customers
 - Refurbishment to be done by the Distributor when equipment becomes unsafe & / or unreliable to operate. Conditions:
 - customer must also agree to the timing
 - engineering solution to minimise costs of both customer and Distributor
- **Provision and costs for excluded services shall be negotiated between the parties.**
 - NERSA reserves the right to regulate these costs if unreasonable.
- **Embedded Generation requirements included in sec 8**
 - EGs >10MVA must also comply with requirements of the Grid Code

System Operating Code

- **Defines roles of parties regarding operating of the DS and connected customer equipment**
- **It promotes having negotiated agreements between parties regarding network operating**
- **Scope:**
 - Safety of personnel and equipment
 - Operational responsibilities of Embedded Generators and other customers
 - Coordination of outages and commissioning
 - Dx has right to test customer equipment at point of connection
 - Contingency planning
 - Operational authority, procedures, liaison with other participants and communication requirements
 - Conditions for disconnecting customers (mainly for safety related reasons)
 - May shed load to maintain network integrity, but customers must be informed (for planned maintenance → 5 days in advance)

Metering Code

- Specify distributors requirements with respect to metering installations
- Extensive reference to NRS 057, but Dx Code takes preference
- Tx/Dx boundary meters is the responsibility of Transmission
- Dx/Customer meters is the responsibility of Distributors
- Metering data validation, collection, processing and verification shall be done as per NRS 057
- Clarify metering data integrity and storage requirements
- Automated Meter Reading is recommended for large Customers
- Confidentiality: Metering data to be regarded as confidential but may not be unreasonably refused if customer requests it
- Also include dispute resolution process

- **The Code describes:**
 - Principles for the determination of tariffs
 - Segmentation of costs for tariff design purposes
 - Tariff design for International load customers
 - Recovery of subsidies and other levies using tariff structures
 - Connection charges principles (Standard and Premium)
- **Included allowable charges:**
 - Energy charges including recovery of losses
 - Network charges, including ancillary services
 - Customer services charges
 - Connection charges.
- **Tariff have to be as Cost reflective as possible**
- **Non-tariff costs (excluded services costs) have to be shown separately and may be regulated**
- **Appendix 1 –guideline to designing tariffs**

Information Exchange Code

- **Objective: reciprocal obligations of parties with respect to provision of information**
- **General principle: mutual agreement between parties**
- **Information divided into 3 types:**
 - Planning info (e.g. info for connection & contingency planning)
 - Operational info (e.g. real-time dispatch, maintenance & commissioning)
 - Post-dispatch (e.g. incident investigations)
- **Each party to appoint information owner to facilitate info exchange**
- **Data storage, security & archiving requirements:**
 - All information should be auditable by NERSA
 - Storage: 3 months for voice recorders, except where there was an incident
 - Storage: 5 years all other information except voice information
- **Confidentiality requirement: information exchanged is non-confidential unless indicated by the owner**

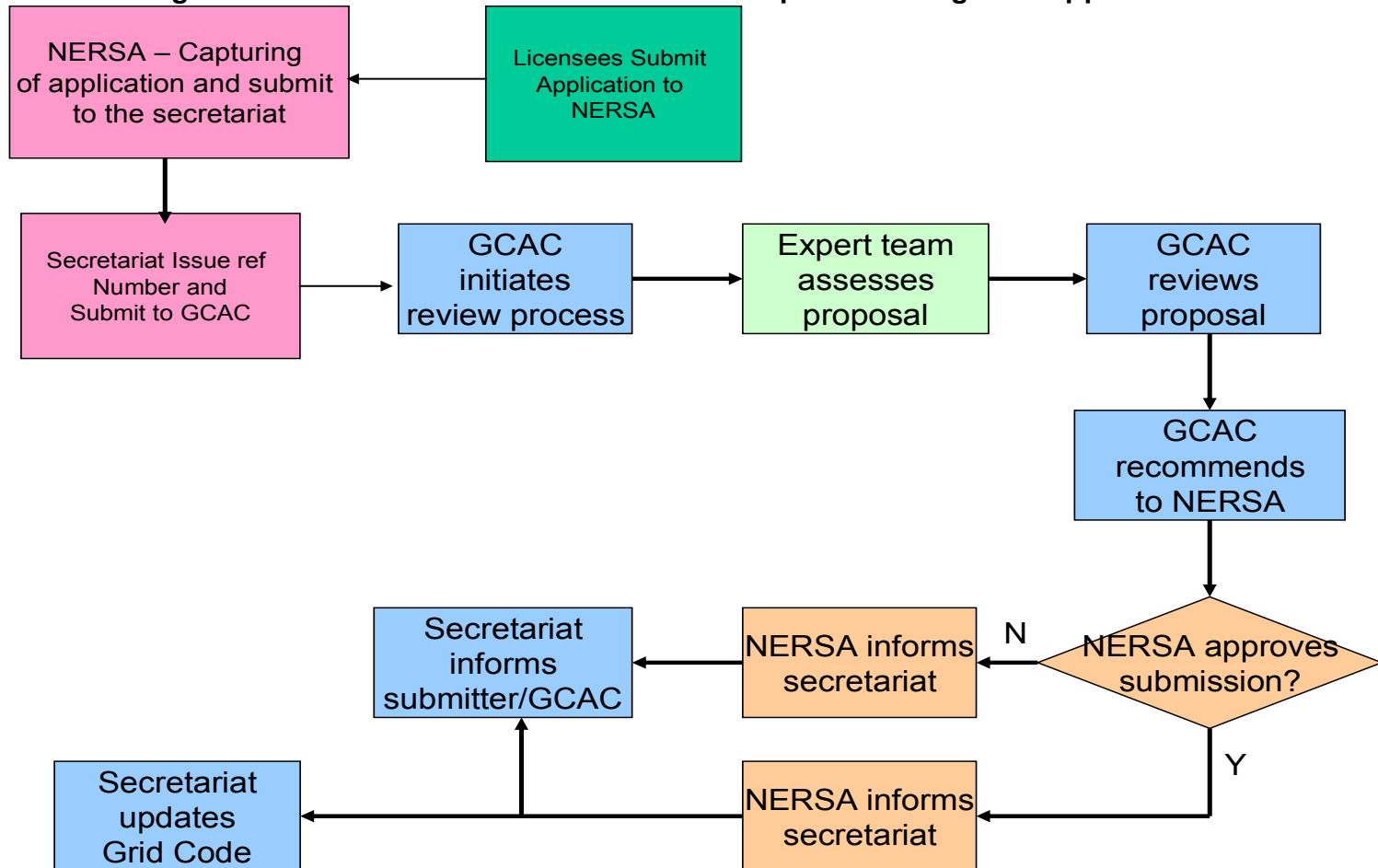
- **Limitation of Liability**
- **Harmonisation of the Tx and Dx Codes**
- **Code enforcement**
- **Embedded generation connection requirements needs further improvements**
- **Conditions for (pre-emptive) load shedding (NERSA's requirement)**

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- **Tx Governance Code to be updated to include Dx Code**
- **Grid Code Advisory Committee (GCAC)**
 - Stakeholder representative panel
 - Current membership: NERSA (chair), AMEU, EIUG, SO, Eskom (Dx, Tx & Gx), IPP, **BEE** & SAPP (non-voting member).
 - Reviews all Codes submissions & make recommendations to NERSA Board for approval
 - May call for industry expert opinion on contentious issues
- **System Operator is the RSA Electricity Codes Secretariat:**
 - Advisor to Grid Code Advisory Committee
 - Handle all exemption and amendments applications through NERSA
 - facilitates submissions to NERSA Board
 - Management of both Grid & Dx codes
 - Chair Experts Team meetings

Amendment/Exemption Application Process

Figure 3: Distribution Code Amendment/Exemption & Derogation Approval Process



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Phase 1 Implementation Process-What Has Happened?

- NERSA workshopped the Code to the distributors with Max Demand >100MVA from November 2007 to April 2008
- Amendment to current license obligations initially Distributors with Max Demand > 100MVA – **To occur in November 2009**
- A reminder letter was sent to the affected licensees in July 2009
- Phased in approach over 12 months (trial) period
 - Month 1 – 6 Distributors were given an opportunity to do self compliance assessment – **minimal feedback**
 - Month 7 – 12 Distributors required to Inform NERSA of their compliance status – **minimal feedback**
 - Apply for exemptions and amendments (via Code Secretariat through NERSA) – **minimal feedback**
 - Month 12 Full implementation, licenses amended to include the code & parties expected to be fully compliant
 - If no exemption → non-compliant (penalty clause in the Act) - **Ongoing**
 - NERSA to conduct adhoc compliance audits for the Code – **Ongoing**

Phase 2 Implementation Process- What is Going to Happen Next?

- NERSA to workshop the Code to the distributors with Max Demand 50MVA > 100MVA as well as IPPs, Embedded Generators beginning in November 2009
- Amendment to current license obligations Distributors with Max Demand 50MVA > 100MVA and IPPs – **To occur in November 2010**
- Phased in approach over 12 months (trial) period
 - Month 1 – 6 Distributors will given an opportunity to do self compliance assessment
 - Month 7 – 12 Distributors will be required to Inform NERSA of compliance status
 - Apply for exemptions and amendments (via Code Secretariat through NERSA)
 - Including interpretation requirements
 - Month 12 Full implementation, licenses amended to include the code & parties expected to be fully compliant
 - If no exemption → non-compliant (penalty clause in the Act)
 - NERSA to conduct adhoc compliance audits on the code.

Self Compliance Assurance – Industry Best Practices

- Licensees align themselves with the Regulator Compliance Framework and Best Business Practices
- Develop terms of reference of and form an internal Work Group to deal with certain aspects of the codes – Analysis and understanding thereof
- Break down the Work Group in the Work Streams and delegate as per terms of reference – Self Auditing and Reporting of Findings
- Compile action plans based on findings and execution thereof
- Where needed identify areas that may require exemptions or amendments in the codes.
- Form an internal body or committee that will monitor the progress
- Re do self assessment at least every two years but maintain the monitoring or the business status quo.

Conclusion

Remember complying to the industry codes of practice, standards, rules and regulations , is for the good of your business, it is mainly for quality of service and supply to your employer (Tax Payer/ Public) as well as to run your business professionally and efficiently.

THANK YOU