



# 69<sup>TH</sup> AMEU CONVENTION

**1 - 4 October 2023**

CSIR International Convention Centre

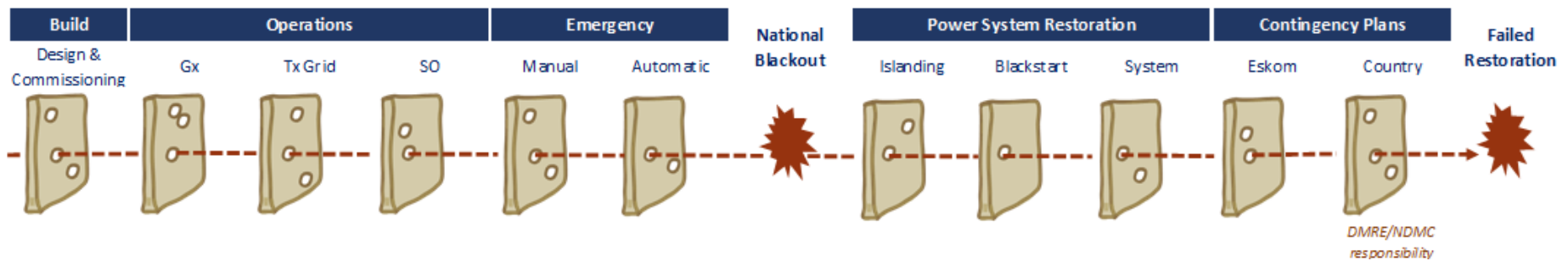
**Confronting South Africa's Electricity Crisis in the context of a 'Balanced Just Energy Transition' (BJET) and the need for a reliable and resilient national electricity grid**

**NRS048-9 Edition 3- Its role in blackout prevention and grid stabilisation**

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# National Blackout Prevention and Response

## National Blackout Prevention & Readiness (barrier analysis)

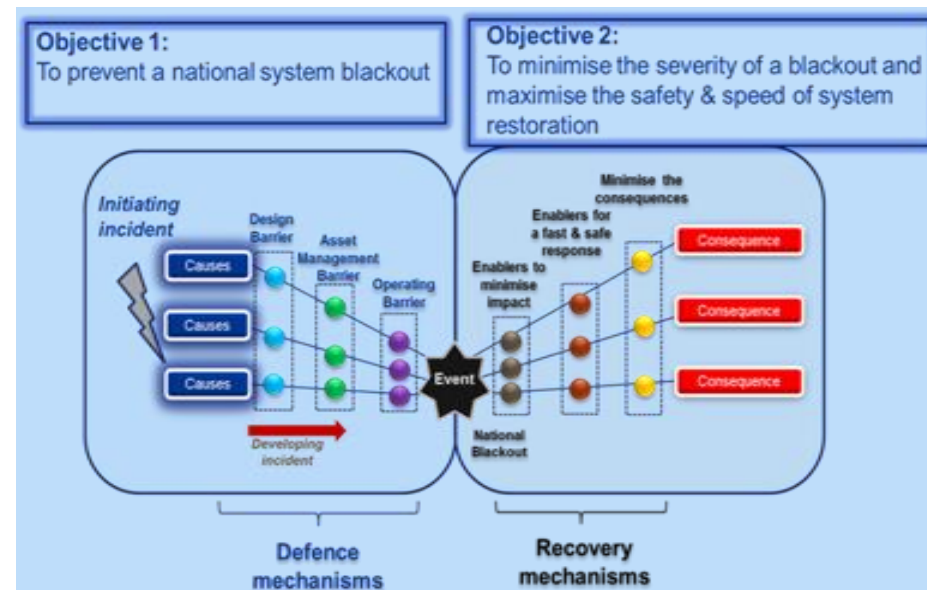


**Design and commissioning** fall under the Build phase for assets on the power system (e.g. Grid Code requirements)

**Maintenance and Operations** fall under the Normal Operational phase for all assets on the power system (Gx, Tx Grids, SO) (e.g. outages, and controller intervention)

**Manual and Automatic Response** falls under the Emergency phase in the event that an incident occurs on the power system that requires a response (ancillary services, reserves, load shedding)

In the event that an incident gets through these defensive barriers and causes a national blackout, then the **System Restoration process** will be required (unit islanding and black-start facilities)



## NRS048-9 Edition 3- changes that improve grid protection

- Increased to 16 Stages from 8 Stages (the whole base load) and removal of contingency sections.
- This leads to extremely lightly loaded networks and high voltages. Therefore a requirement was added that utilities assess the impact of reduced load on their networks and plan safe ways to reduce load as stages increase.
- 16 Stages using the full base load each results in 6.25% per stage, allowing some fat to guarantee the 5% NCC needs per stage.
- Edition 3 allows municipalities, while insisting on a 5% minimum, to use this gap for critical loads that benefit all customers, while allowing NERSA to audit and possibly undo this if inequity is discovered.
- This aligns with essential load amounts for curtailment customers.
- Introduction of “strategic curtailment” loads. NCC uses certain customer loads to assist in system stability. The parameters that identify loads that can assist in this way are specified in Edition 3.
- “Normal” curtailment loads will reduce to the stage instructed for load shedding.

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**Thank you!**

