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- **BACKGROUND**
- **MOTIVATION & RA**

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**ONE PAGER**

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**A Request for Information for the supply and installation of a fire and explosion prevention system on the generator transformers at Koeberg Nuclear Power Station, Western Cape**

Brief background, motivation and risk assessment for:

**Explosion & Fire prevention systems (EFPS)**

PR Number: Not applicable

Contract Number: Not applicable

**BACKGROUND and MOTIVATION and RISK ASSESSMENT**

**1. BACKGROUND FOR MODIFICATION**

A generator transformer failure will result in loss of production, UCLF, constraints to the grid network and a possibility of load shedding. Should the transformer failure cause an explosion, there is a possibility of damaging the adjacent transformers, property and injury/fatality to plant personnel. The extent of damage can be minimised if a solution may be found. The Generation Engineering Transformer Strategic document stipulates the installation of surge protection as mandatory. The existing transformer protection system is not designed to respond fast enough to clear a fault within 50 ms of the fault initiation. In the event of large electrical arcs occurring within the transformer, the explosive gases created present a very dangerous situation. The inability of the transformer protection system to clear a fault within 50 ms of the first peak pressure (dynamic pressure), may result in a tank rupture followed by a fire ignition. If the gases that are created inside the transformer, during the fault, are not evacuated immediately, the inevitable ignition of the insulating oil will occur. This will consequently cause an explosion and cause catastrophic failure of the transformer, enormous damage to surrounding equipment and property, and a possibility of injury and/or fatality to personnel.

**2. MOTIVATION FOR MODIFICATION**

**Business Need:**

The failure of the transformers will have a huge impact on the business due to the loss of production of approximately 10 days. It will also affect the UCLF index of the business. The failure of the transformers will have an impact on the grid network with the possibility of load shedding and blackout.

The transformers primary risk is the loss of production due to failures. The transformer failure may cause the unit to be off load for a longer period depending on the extent of damage.

Currently the project management team are in the development phase of this project. In order to conclude the feasibility study being compiled by design engineering, information is needed from the market so as to influence the number of alternatives which may be available and information in order to rank the alternatives using specific criteria, for example, cost, duration and ease of maintenance. Currently the procurement service required is that of a request for information.

### 3. RISK ASSESSMENT

Risk	Risk Description	Pre - Mitigation Level	Mitigating Factors	Post - Mitigation Level
Cost	Unknown cost due to RFI required to set a reference for a Feasibility Study	Medium	Setting up the technical requirement document to ensure information acquired is useable	Low
Scope	Scope change dependant on the RFI outcome	Medium	Setting up the technical requirement document to ensure information acquired is useable	Low
Resources	Availability of Design Engineers to provide necessary supporting information for the RFI which will result in scheduled delays	Medium	System Engineers are informed daily on the progress on the RFI in the market and adhoc meetings scheduled.	Low
Supplier	Supplier availability in South Africa	Medium	Ensuring that there is enough time for prospective suppliers to respond to the RFI	Low
Time	Schedule not yet clear as dependant on response from the market.	Medium	Setting up the technical requirement document to ensure information acquired is useable	Low

Compiled by: Andrea Devine

19<sup>th</sup> Nov 2025

Approved by:



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(Programme Manager)

2025/11/20

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Date