Insulator Bird Shield

Date: 01 October 2023

Table of Contents

1) Background 2
2) Motivation 2
3) Benefits to Eskom 2
4) Scope of work 3
5) Technical Evaluation Criteria 3
6) Pricing Schedule 5

1) Background

The performance of Eskom's transmission line network has for many years been closely monitored and analysed, particularly as regards the identification of the causes of power line faults in the network. For over two decades, considerable effort has been expended on reducing the number of flashovers caused by fires and bird-related effects, these factors being two of the major causes. Birds cause flashovers on power lines in three ways:

- Bridging of the conductors-to-tower air-gap by the wings and body of the bird (applies mainly to lines of 132 kV and below.
- Pollution flashover caused by the pre-deposit of excrement on suspension insulators.
- Bridging of the tower-to-conductor air-gap by a streamer of excreta. The streamer is generally electrically conductive.

2) Motivation

Bird Shield devices have been installed, in a pilot. We have identified that there was significate improvement in the lines they had been installed in. The Bird Shield devices allow for reduction in pollution on insulator on Transmission line. This allows for reduction of bird pollution on towers and insulator string, which would reduce faults in the long term.

3) Benefits to Eskom

The birds shield is applied at the dead/grounded end of the insulators on a transmission line. They serve the purpose to prevent the bird excrement from bridging the gap between the tower and the live conductor, and prevent from excrement build up on the insulator surfaces. Given that that majority of faults on transmission lines are attributed to birds, it is anticipated that the application of these birds guards, as part of a pilot project, will serve to reduce the number of faults caused by birds streamers and excrement build up on the insulators.

4) Scope of work

Supply and deliver of Insulator Bird Shield.

5) Technical Evaluation Criteria

Material type	:	High temperature polymer
Size of shield	:	600mm (diameter attribute) atleast 2.5mm thick
UV-resistant	:	last 5000hrs, 8Mpa min.
Electrical width standing	:	at least 1 min of 36kV in wet and dry conditions.

Fit both ceramic (porcelain and ceramic) and Polymeric insulator

Pressed strut, to connection method with Two-piece shield to be attached: Priority

To be able to be installed while insulators are Inservice. Needs to be dust and versatile installation.

Superior high-voltage outdoor materials are used in the RRGS shield design. The rugged, non-tracking, UV-resistant, high temperature polymer ensures long-term performance even in the most extreme environmental conditions.

KEY FEATURES
• Easy to install on insulator and bushings
• Bolted design for excellent mechanical hold and wind resistance
• Excellent insulator, prevention against phase-to-ground flashovers
• Rugged, non tracking, UV and chemical resistant polymer

REQUIREMENTS

The technical tenders received will be evaluated via a document evaluation (desktop assessment) process.

The evaluation exercise is performed by the appointed Eskom technical team. This initial part of the evaluation starts when submissions are opened and assessed for the first time. The submitted documents will be evaluated against the evaluation criteria as stated in this document.

The evaluations are done to establish whether all the key tender deliverables are met. A minimum total of 80% is required to pass the technical requirements. – Technical evaluation criteria for metal bird plate and related fasteners

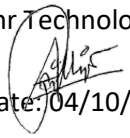
Insulator Bird Shield – Technical evaluation criteria score sheet

	Criteria	Scoring weight	Score
1	**Physical**	**50% of total**	
1.1	Thermal index: minimum 105 °C	20%	
1.2	Thermal shock: minimum 168hrs at 150°C Minimum 8MPa 100%	20%	
1.3	Insulator type : Polymeric/Silicone/Glass	20%	
1.4	Shield Diameter : minimum 600mm Shield Height: minimum 100mm Shield Thickness: minimum 2.5 thick	20%	
1.5	Component design : Two piece shield design, attached with plastic fasteners and nuts around the top of the insulator string	10%	
1.6	Accelerated aging for 168hours: Tensile strength- minimum 17pa Elongation- minimum 25%	10%	
2	**Electrical**	**50% of total**	
2.1	UV resistance	20%	
2.2	Tracking and erosion resistance: No tracking erosion to top surface or flame Stop Voltage method failure after: 1hr. at 2.5 k.V 1hr. at 2.75 k.V 1hr. at 3.0 k.V Initiate at 2.5kV and 20min at 3.25kV	20%	
2.3	Dielectric strength: Minimum 15kV/mm at 2.5mm minimum 130kV per cm Dielectric constant - 5	20%	
2.4	AC withstand minimum of 1min at 36kV wet and dry conditions	20%	
2.5	Volume resistivity –minimum 1.0 x 10^{13} ohm-cm	20%	

6) Pricing Schedule

Item	Description	Quantity	Unit Price	Total Price
1	Supply and delivery of insulator Bird Shield.	1500		
Total (excluding vat)				

Complied by:
A-J Phillips
Snr Technologist: Electrical



Date: 04/10/2023

Accepted by:
Nishal Mahatho
Senior Consultant

Date: