	Request for Information (RFI)	Template Identifier	240-72663051	Rev	1
		Document Identifier	N/A	Rev	N/A
		Effective Date	01 August 2016		
		Review Date	September 2022		
		EOI/RFI No.	MWP1463TX		

PART A REQUEST FOR AN EXPRESSION OF REQUEST FOR INFORMATION (RFI)			
Description of the works/goods/services	Request for information on commercially available and/or demonstrated advance ash deposit cleaning technology		
Deadline for submission	27 July 2022	At (South African Standard Time)	10:00am
Tender Office address	Eskom Megawatt Park Tender Office North Side Maxwell Drive Sunninghill Marked: CONFIDENTIAL TENDER NO. MWP1463TX  <b>VERY IMPORTANT TO NOTE IS THAT TENDERS DELIVERED LATE TO THIS ADDRESS WILL NOT BE ACCEPTED.</b>		

Eskom Holdings SOC Ltd (“Eskom”) invites you to submit a **Request for information (RFI)** for the services as stated in the table above. This RFI is a stand-alone information-gathering and market-testing exercise, intended only to inform and assist Eskom’s further deliberation and development of a strategy for the following:

Commercially available and/or demonstrated advance ash deposit cleaning technology.

Eskom may request indicative prices if so stated in this RFI.

## 1. BACKGROUND

All coals have a significant content of inorganic materials which deposits on heat transfer surfaces in and around the boiler that can interfere with operations, and thus cause unplanned shut-downs or reduced output and efficiency. Whilst boilers are designed to minimise the effect of deposit build-up with usage of wall blowers and sootblowers. The main deposits which affect the operation of the boiler are slagging and fouling.


Various technologies have been proposed to Eskom to try to mitigate ash deposition problems in boilers by cleaning boiler ash deposits in the radiative and convective section. Eskom has in the past considered the use of detonation waves that may be used instead of traditional sootblowers to remove slagging and fouling. The cost and efficiency of alternative technologies is always a consideration issue, which has led to different views in the past by most utilities. As with most parameters relating to boiler operation, the issues are complex.

In order to obtain advances in other technologies other than sootblowers deployed in similar operation to Eskom, Eskom is inviting suppliers to furnish relevant information on how alternative technologies can be used to remove slag, fouling deposits in a boiler. The information provided by suppliers will be used by Eskom to determine the future strategy of potentially using these advance

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technologies in Eskom and to possibly undertake bench scale/pilot plant tests that will demonstrate the applicability thereof.

## 2. MOTIVATION

The capital cost associated with the removal of ash deposit in a boiler are significant. In most instances a unit has to be switched off to effectively removed slag and fouled air heater tube deposit.

Should the advanced ash deposit cleaning technology prove to be beneficial with not extended period on outage required in managing ash build-up in a boiler, then this will aid power stations to avoid unnecessary outages caused by slagging and fouling.

## 3. BENEFITS TO ESKOM

Research Testing and Development will thereafter:

- Summarise RFI evaluation results of the participated suppliers and their offered advance ash deposit cleaning technology and provide recommendations to Eskom on the way forward;
- Identify promising advance ash deposit cleaning technology for research to possibly take forward as part of the pilot and demonstration programme in one of Eskom boilers;

## 4. SCOPE OF WORK

Eskom is requesting information on commercially available and/or demonstrated advance ash deposit cleaning technology.

## 5. SPECIFICATION OF THE PRODUCT


The supplier is to submit two hard copy files and an electronic copy with the content listed below. The supplier is also welcome to supply additional information that they deem relevant and in evaluating the technology:

- Supplier name, product name and product description (type of technology utilised and the scientific background, unique features, general arrangement drawings as to how this is deployed in a power station);
- Provide a process and instrumentation diagram of a typical installation (including overall mass balance, input and output streams);
- Provide functional descriptions and operating parameters of all key equipment;
- Describe the control and protection philosophy of the boiler if the technology is utilised, and if any, what design codes are used in the design of the system;
- Provide a list of interface/utility requirements and qualities (compressed air/process air, cooling water, process water, electrical supplies, auxiliary power consumption, control and instrumentation interface requirements and number of signals, and modifications/upgrade of existing equipment);
- Number of "equipment" required for effective removal of ash build-up;

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- Maintenance philosophy of all key equipment (service intervals and duration, wear parts and replacement timeframes, typical service costs, including repairs, spares and labour for each type of service, reliability and availability statistics from previous installations, spares availability and lead times and specialised engineering, operating and/or maintenance skills);
- Unit availability information before and after advance ash deposit cleaning technology was installed;
- Reference installations [name of power plant, units installed on, unit capacity, date of commercial operation of units, date of when the advance ash deposit cleaning technology was initially deployed, years of operation after technology deployment, reason for removal if any, type of coal fired and specification];
- Budgetary cost estimated for the supply of advance ash deposit cleaning technology and associated equipment installation of the technology on a typical unit complete with all required auxiliary and ancillary equipment required for the functioning of the system [capital and operating expenditure in South African Rand (ZAR) per kilowatt (kW)];
- Implementation timeline;
- Estimated percentage of local content for associated technology;
- Supply of equipment for demonstration [demonstration volume/scalability guarantee, a letter of intent if willing to implement a pilot/demonstration plant at Eskom power plants, terms and conditions for the use of the equipment, as well as indicative capital and operating expenditure (ZAR/kW)];
- Intellectual property (license and ownership - if licensee, provide details including terms and conditions);
- Case studies / patents / reports / literature based on product experience / usage (provide report title, year published, author names, author's affiliation);
- Compliance to relevant standards.


## 6. IMPORTANT NOTES

- 6.1 Due the specific need that this RFI process to fulfil, Eskom wishes to clarify that this RFI is not intended to impede, amend or replace any current or future procurement process that Eskom has engaged in or will engage in.
- 6.2 Eskom reserve the right, in its absolute discretion, any stage and without notice, to terminate further participation in the process by any party, to select or disqualify any interested participant from further engagement, to amend and/or terminate this RFI process or any future process pursuant to this process.
- 6.3 This RFI is a stand-alone information gathering and market analysis exercise, intended only to inform and assist Eskom in an investigation currently being carried out for an existing project. All respondents, participate herein on the basis that is providing information voluntarily to strengthen a potentially beneficial process of all stakeholders.
- 6.4 Any and/or all information submitted by any and/or respondents maybe used in the development of this intended solution, without the necessity of acknowledging the source,

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and without such entity gaining any rights in respect of such a solution, including but not limited to any intellectual property rights.


## 7. CLARIFICATION MEETING

A clarification meeting is not applicable.

Eskom has delegated the responsibility for this RFI to the signatory of this document, whose details can be found below.

We look forward to receipt of your response.


Yours faithfully

<b>Name</b>	<b>Designation</b>	<b>Signature</b>	<b>Date</b>
<b>Damela Mathetja</b>	<b>Manager Procurement</b>		30 June 2022
<b>Telephone number</b>	<b>011 516 7043</b>	<b>Fax and/or e-mail address</b>	<a href="mailto:mathetd@eskom.co.za">mathetd@eskom.co.za</a>

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<b>PART B</b> <b>RESPONSE SHEET IN TERMS OF A REQUEST FOR INFORMATION</b> <b>To be completed by the supplier</b>			
<b>To</b>	Eskom Holdings SOC Ltd	<b>Date</b>	
<b>Attention</b>	Simon Ross McMillan		
<b>Tel no</b>	+27 (0) 11 516 7043	<b>Fax no and /or e-mail address</b>	<a href="mailto:mcmilsr@eskom.co.za">mcmilsr@eskom.co.za</a>
<b>From</b>			
<b>Address</b>			
<b>Sender</b>			
<b>Description of the works/goods/services</b>	Commercially available and/or demonstrated advance ash deposit cleaning technology.		

Please find below our response to Eskom's questions:

No.	Question	Please indicate your response in this column
1.	<i>[your contact name and contact details]</i>	
2.	<i>[Company registration number]</i>	
3.	<i>[brief description of previous experience and Description of the solution that you can offer]</i>	
4.	<i>Indicative prices (optional and only for use of RFI's)</i>	
5.	<i>[ Add applicable questions]</i>	


Yours faithfully

Name	Designation	Signature	Date
Telephone number		Fax and/or e-mail address	

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## APPENDIX A: ESKOM REFERENCE INFORMATION

### General Information

Eskom coal-fired stations are used for base load. The units run at full load during peak periods and come down to minimum load when the demand is low. The typical capacity is 500 – 800 MW<sub>e</sub>, with coal supply from mines in the area. The typical Eskom Power station has 6 units. The information below is for a Reference Eskom station.

**Table 1: Typical Eskom Station**

Name of Utility	Eskom
Name of Station	-
Number of Boilers	6
Capacity of Unit	500 - 800MW
Coal Supply	South Africa
Coal	Sub-bituminous

**Table 2: Boiler**

Manufacturer	Various	Unit
Burner arrangement	Front and rear wall fired, Tangential fired	
Coal consumption at maximum continuous rating (MCR)	290 to 577	t/h
Number of mills	5-6	
Mills in operation at MCR	4-5	
Flue Gas Volume [Actual Cubic Meters per Second (Am3/s)]	Up to 1200	
Flue Gas Temperature [degrees Celsius (°C)]	1600 to 160	

**Table 3: Coal Quality**

Parameter	Measurement Base	Worse Coal	Best Coal
Total Moisture	As received	9 %	9 %
Inherent Moisture	Air dry	3 %	3 %
Calorific Value	Moisture free	17.76 MJ/kg	24.23 MJ/kg
Ash	Moisture free	39.48 %	23.40 %
Volatile Matter	Moisture free	19.17 %	22.24 %
Total Sulphur	Moisture free	1.60%	0.93%


**Table 4: Size Grading for Mills**

	Rejection
Top size	0% >50 mm & <5% >45 mm
-3.35 mm	< 25% cumulative
-1.0 mm	< 10% cumulative

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**Table 5: Concentration of Pollutants in Flue Gas**

Pollutant	Untreated Flue Gas (mg/Nm3, Dry at 10 % O2)	Required in Treated Flue Gas (mg/Nm3, Dry at 10 % O2)
NOx	750 to 1 300	< 600
SO2	2 800 to 5 000	< 400
SO3	Not measured	% Reduction to be advised by supplier
Hg	0.01 to 0.04	% Reduction to be advised by supplier
PM / Fly Ash	40 000 to 60 000 – before ESP 50 to 200 – after ESP	< 40

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