

# INTEGRATED ENVIRONMENTAL IMPACT ASSESSMENT: PROPOSED EXPANSION OF ASH DISPOSAL FACILITY, KRIEL POWER STATION, MPUMALANGA



## *Summary Document for the Scoping Report*

*Eskom Holdings SOC Limited (Eskom) is proposing to expand the existing Ash Disposal Facility at the Kriel Power Station, Mpumalanga, for the disposal for coarse and fine ash produced by the burning coal for the generation of electricity, for the remaining operational life of the power station.*

### **HOW DOES THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS WORK?**

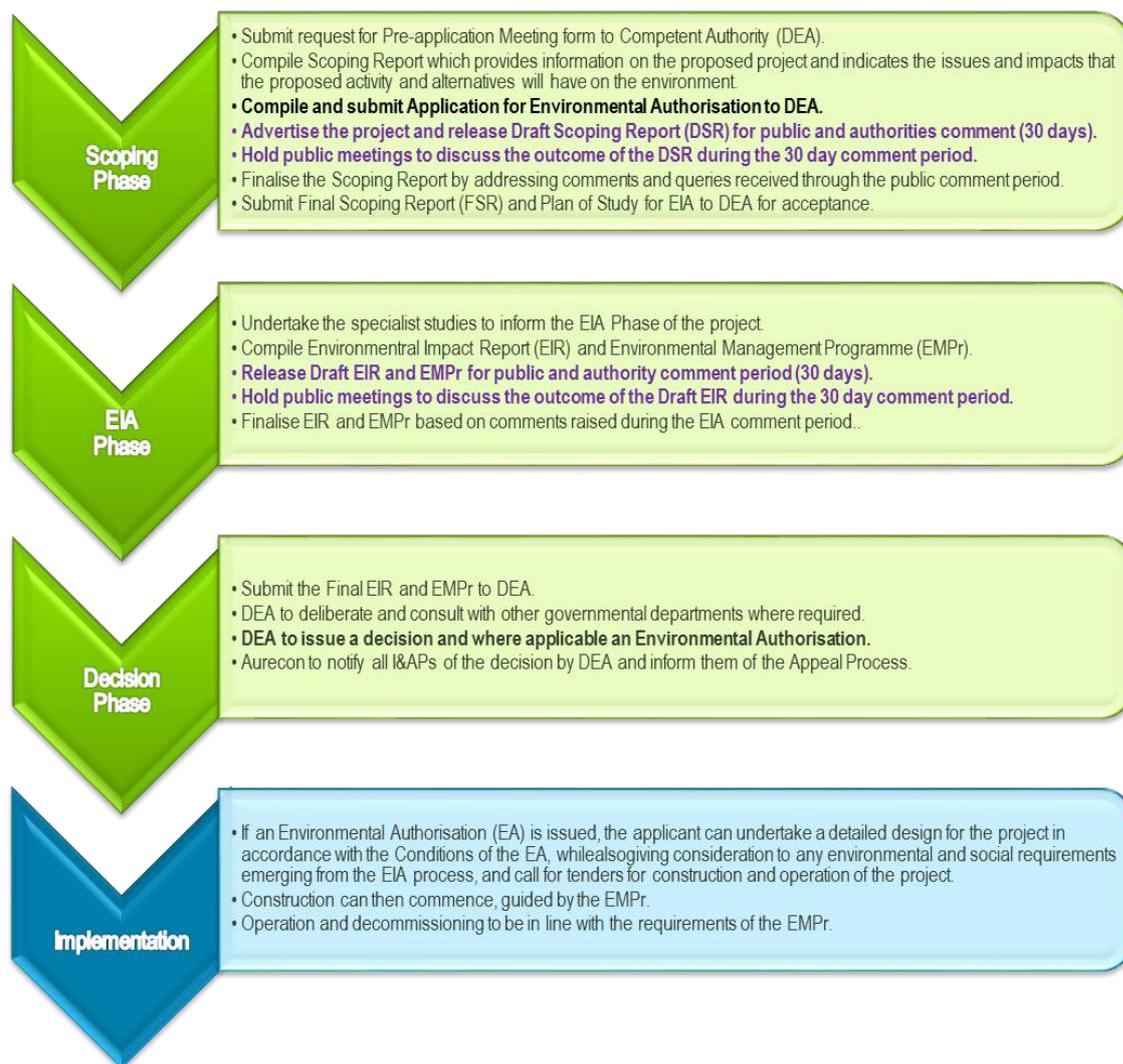
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An Environmental Impact Assessment (EIA) is a process that is undertaken in terms of the requirements of the National Environmental Management Act (Act 107 of 1998) (NEMA), as amended, and its associated regulations (i.e. Government Notice Regulation (GN R.) 982, 983, 984 and 985). The purpose of the EIA process is to evaluate the environmental and socio-economic characteristics of the proposed project and the consequences of the project on the environment and the people living in the area that would be affected by the proposed project activities. Where negative impacts are likely to result from the project, measures can be recommended to avoid or reduce these impacts to a level where the impacts are considered acceptable from an environmental and social perspective. Where positive impacts are likely to result from the project, measures can be recommended to increase these impacts. The EIA process also provides Interested and Affected Parties (I&APs) with an opportunity to comment on the proposed project and to be kept informed about decisions that may impact on them or the environment. The various stages of the process are shown in Figure A below.

This Summary Document includes the following information:

- An introduction to the proposed project and an overview of the environmental legislative requirements;
- Description of the proposed Ash Disposal Facility and the alternatives being considered;
- An overview of the approach to the EIA describing the public participation process;
- Potential impacts identified for detailed assessment by specialists in the EIA Phase; and
- The way forward.

***This Summary Document cannot replace the comprehensive Scoping Report and it is recommended that the Scoping Report is reviewed for more detailed information.***



**Figure A: EIA process to be followed for the proposed Kriel Ash Disposal Facility**

#### **WHAT IS PROPOSED AND WHERE?**

The construction of Kriel Power Station was completed in 1979 and it was considered to be the largest coal-fired power station in the southern hemisphere at the time. The 37 year old power station with an installed capacity of 3 000 MW (Eskom, 2010) is situated about 7 km east of the small town of Kriel (also known as Ga-nala ) in the Mpumalanga Province. Through the process of electricity generation coarse and fine ash is produced by burning coal. At full capacity, each of the six boilers can produce up to 740 000 tonnes/year of coarse ash/ boiler bottom ash (approximately 20% of total ash produced) ash and 2 960 000 tonnes/year of fly ash/ precipitator fly ash (approximately 80% of total ash produced).

The Kriel Power Station makes use of a wet ashing process to dispose of its ash. Coarse ash is transferred with a small volume fine ash (fly ash, to limit pipeline wear) from the Power Station to sumps from where it is pumped as a slurry mixture to the ash dams. The fine ash is transported separately to the existing ash dam complex via two conveyors that are located south-east of Kriel Power Station. The three existing ash dams will reach a limiting

Rate of Rise (RoR) by end July 2021. Eskom is thus proposing to construct and commission an additional Ash Disposal Facility before the existing ash dams reach their limiting RoR in 2021. The new dams would fulfil the ash disposal requirements for the Power Station's extended operational life, with decommissioning of the six generating units planned to commence in 2036. A five year contingency has been allowed for, thus it's assumed that the Power Plant will be operated for an additional five years at full load from 2036 to 2040, with final decommissioning date proposed for 2045.

In order to expand the Power Station's ash disposal facility, the following components are required:

- An Ash Disposal Facility that would have sufficient capacity to store ash volumes produced up to 2045;
- Ash Water Return dam from where decant and drained water will be pumped back to the power station for re-use;
- Ash Water Return transfer dam;
- Delivery and return infrastructure, including conveyor belts and/ or pipelines, transfer houses, pump stations;
- Clean and dirty water channels;
- Powerlines; and
- Access roads.

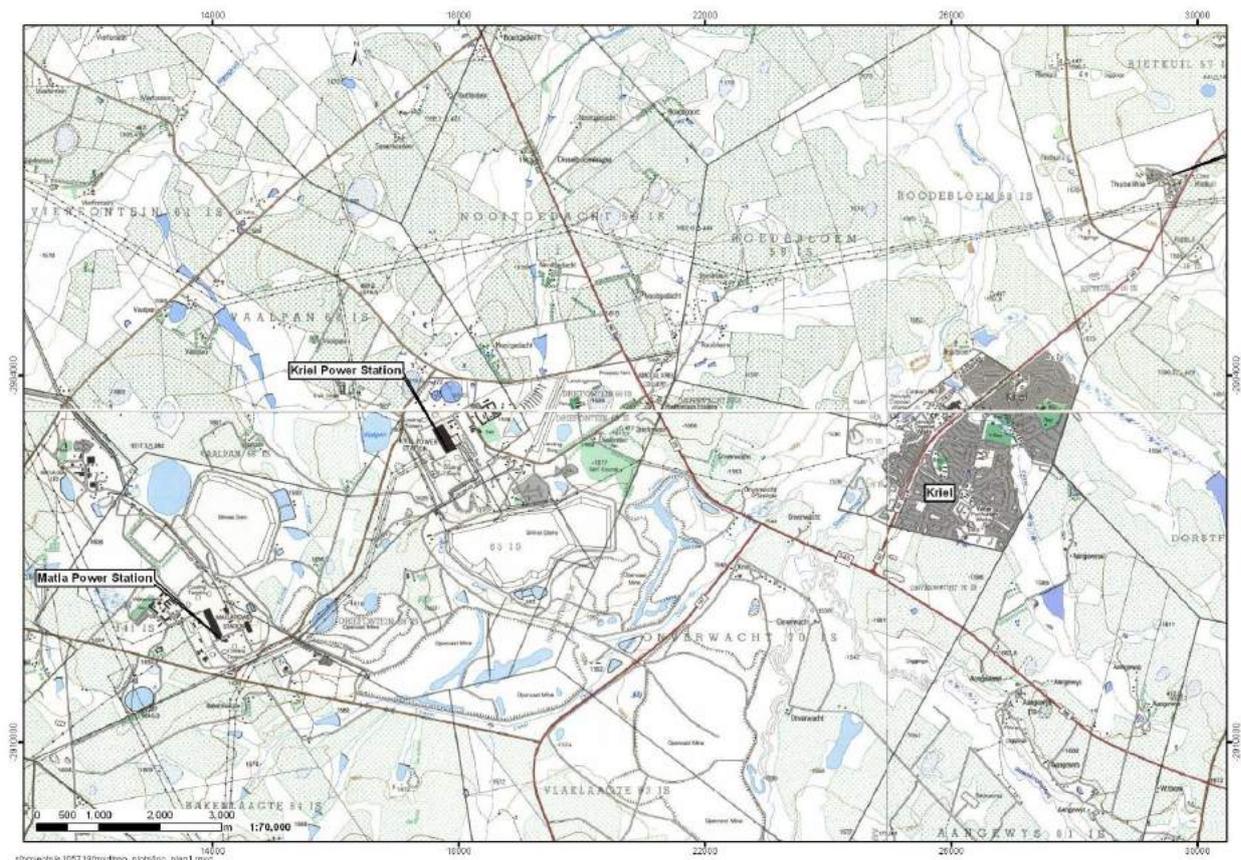


Figure B: Location of the Kriel Power Station

## WHAT ALTERNATIVES ARE BEING CONSIDERED?

NEMA requires that feasible alternatives are considered during the EIA process. An important function of the Scoping Phase is to screen potential alternatives to derive a list of feasible alternatives that need to be assessed in further detail in the EIA Phase. An alternative is defined as a possible course of action, in place of another, that would meet the same purpose and need (DEAT, 2004). Alternatives that have been considered are as follow:

| Alternative        | Description  | Preferred option for this application  |
|--------------------|--|--|
| <b>Location</b>    | Alternative locations for the entire project proposal or for components of the project proposal.                       | Site 10 for the proposed Ash Disposal Facility and associated conveyor system alignments.  |
| <b>Site layout</b> | Site layout alternatives permit consideration of different spatial configurations of an activity on a particular site. | Ash Dam 4.1 and 4.2. One layout for Site 10 ashing facility and associated infrastructure. |
| <b>Activity</b>    | Also referred to as project alternatives. Requires a change in the nature of the proposed activity.                    | Wet ashing.  |
| <b>No go</b>       | In terms of the legislation, the alternative of no development will also be considered.                                |  |

The above categories and preferences of alternatives are the ones most pertinent to this EIA process, and are explored in Chapter 3 of the Scoping Report.

## WHAT ENVIRONMENTAL APPROVALS ARE REQUIRED?

In terms NEMA, the proposed development triggers a suite of activities, which require authorisation from the competent environmental authority before they can be undertaken. Furthermore, the National Environmental Management: Waste Act (Act 59 of 2008) (NEMWA) provides various measures for the prevention of pollution and ecological degradation, as well as for ecologically sustainable development in order to protect human health and the environment. In this regard, NEMWA identifies and lists certain activities which require environmental authorisation through the NEMA EIA and waste management licensing processes, prior to commencement of those activities. In addition, a Water Use Licence would be required in terms of the National Water Act (Act 36 of 1998) (NWA). This application process is however undertake by Eskom, separate to this EIA process.

Eskom appointed Aurecon South Africa (Pty) Ltd, an independent company, to conduct an integrated EIA process to evaluate the potential biophysical and socio economic impacts of the proposed project and undertake the required waste licensing processes. Since Eskom is a State Owned Enterprise (SOE), and Kriel Power Station is in the Eskom Generation fleet, the competent authority is the national Department of Environmental Affairs (DEA). DEA's decision will be based on the outcome of this EIA process.

## WHAT IMPACTS ARE EXPECTED?

The proposed Ash Disposal Facility could potentially result in a range of environmental and socio-economic impacts during the construction and operational phases as identified during this Scoping Phase. The following potential impacts have been identified:

| Construction Phase<br>(biophysical & social)  | Operational Phase<br>(biophysical)  | Operational Phase<br>(social)  |
|---|---|--|
| <ul style="list-style-type: none"> <li>■ Disturbance of flora and fauna;</li> <li>■ Sedimentation and erosion of water ways;</li> <li>■ Increase in traffic volumes;</li> <li>■ Disposal of hazardous substances on site;</li> <li>■ Increased risk of fire;</li> <li>■ Pollution (noise, air and water); and</li> <li>■ Dust impacts.</li> </ul> | <ul style="list-style-type: none"> <li>■ Impacts on the terrestrial fauna and flora;</li> <li>■ Impacts on aquatic flora and fauna;</li> <li>■ Impacts on groundwater resources; and</li> <li>■ Impact on air quality.</li> </ul> | <ul style="list-style-type: none"> <li>■ Visual impacts;</li> <li>■ Impact on heritage resources;</li> <li>■ Noise impacts;</li> <li>■ Impacts on the local economy;</li> <li>■ Impacts on agriculture and other land uses in the study area;</li> <li>■ Impacts on traffic;</li> <li>■ Impacts on existing infrastructure and services; and</li> <li>■ Impacts on health and safety of workers and others in the area.</li> </ul> |

During the EIA Phase, the following team of specialists will assess the significance of the potential impacts:

| Study   | Consultant and Organisation  |
|---|--|
| Terrestrial ecology impact assessment                         | Dr Brian Colloty, Scherman Colloty and Associates                    |
| Aquatic ecology impact assessment                             | Dr Brian Colloty & Dr Patsy Sherman, Scherman Colloty and Associates |
| Groundwater assessment  | Mr Louis Stroebel, Aurecon   |
| Air quality impact assessment                                 | Ms Renee von Gruenewaldt, Airshed Planning Professionals             |
| Visual impact assessment                                      | Mr Johan Goosen, Aurecon   |
| Heritage impact assessment                                    | Mr Polke Birkholtz, Professional Grave Solutions: Heritage Unit      |
| Noise impact assessment                                       | Mr Derek Cosijn, Jongens Keet Associates                             |
| Agricultural / land capability and economic impact assessment | Mr Paul Vermaak, Sole Proprietor & Mr F Botha, Eco-Soils             |
| Traffic impact assessment                                     | Mr Werner Heyns, Aurecon   |

This is done by means of specific methodology developed for assessment of significance of impacts, based on the specific characteristics of the site and the proposed Ash Disposal Facility. The findings of these studies will be presented in the EIA Report which will be made available for public review. ***For more detail on the Plan of Study for the EIA Phase, please refer to Chapter 6 of the EIA Report.***

## WHAT IS PUBLIC PARTICIPATION AND HOW DO YOU GET INVOLVED?

Public participation is an important part of the EIA process, as it allows the public to get information about the proposed project, to view documentation, to make input and voice any concerns.

I&APs have been afforded a 30-day public comment period on the Scoping Report from **26 October to 28 November 2016**. I&APs have been notified of the availability of the Scoping Report which will be lodged at:

- Kriel Public Library
- Kriel Power Station

The reports will also be made available electronically on the following websites:

- Aurecon website:
  - <http://www.aurecongroup.com/en/public-participation.aspx>; and
- Eskom website:
  - [http://www.eskom.co.za/OurCompany/SustainableDevelopment/EnvironmentalImpactAssessments/Pages/Environment\\_Impact\\_Assessments.aspx](http://www.eskom.co.za/OurCompany/SustainableDevelopment/EnvironmentalImpactAssessments/Pages/Environment_Impact_Assessments.aspx)) and potential.

Public meetings will also take place during the 30-day public comment period to allow I&APs the opportunity to engage directly with Aurecon regarding the proposed project and any issues or concerns:

| Venue                        | Date            | Format                     | Time                             | Address   |
|------------------------------|-----------------|----------------------------|----------------------------------|---|
| Thubelihle Community Hall    | 2 November 2016 | Open House                 | 14:00 to 17:00                   | Thubelihle Community Hall, Next to clinic, Kriel Drive                              |
| Methodist Church Hall, Kriel | 2 November 2016 | Open House<br>Presentation | 18:00 to 19:00<br>19:00 to 20:00 | Methodist Church Hall, Kriel<br>65 Springbok Crescent and corner of Flamingo Avenue |

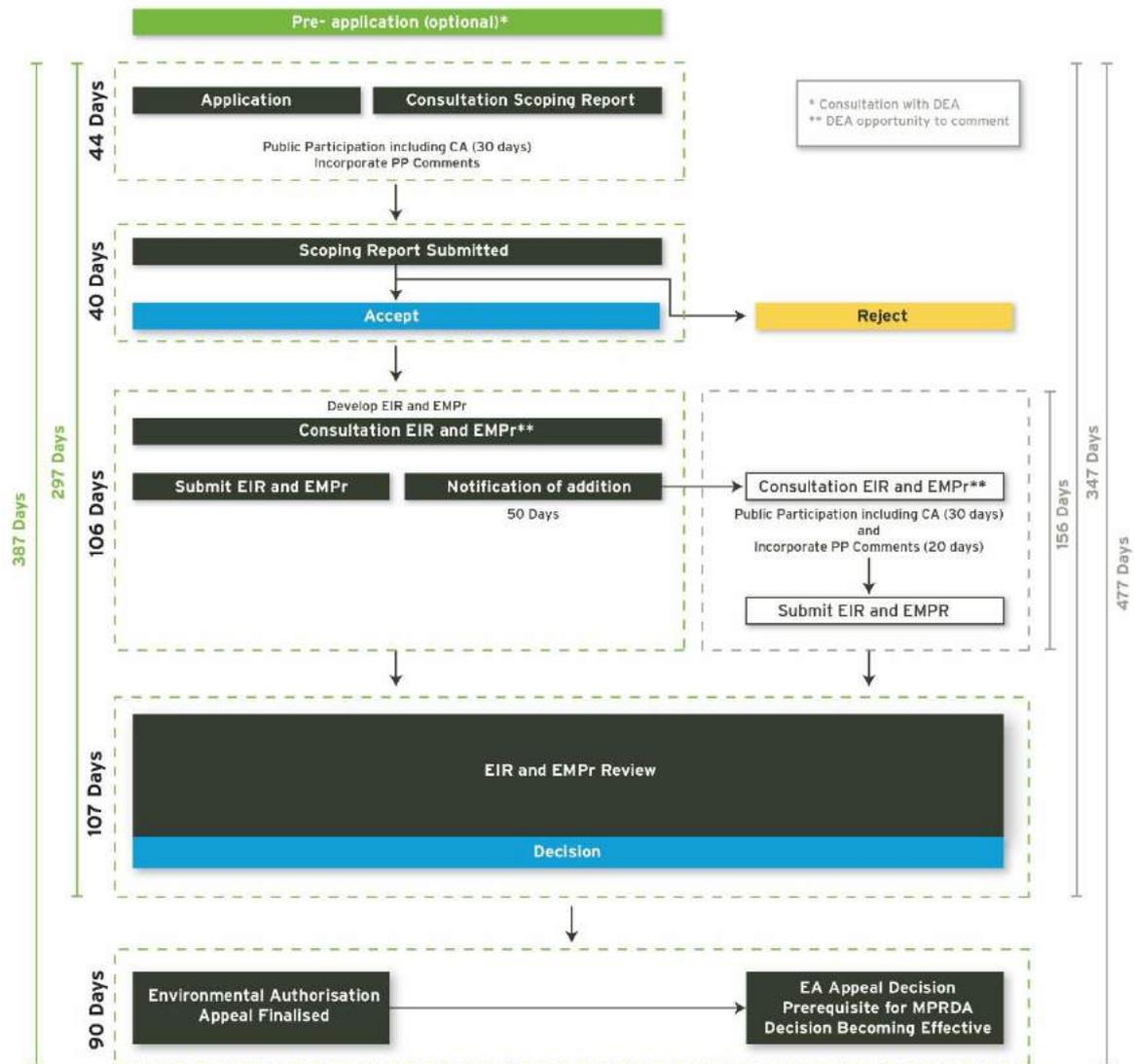
All I&APs are encouraged to submit written comments/ issues/ concerns on the proposed Ash Disposal facility by **28 November 2016** at the latest. Comments can be submitted via email, mail or fax and must be directed to Mr Dirk Pretorius or Ms Franci Gresse as indicated below.

| EIA Project Team: | Dirk Pretorius                  | Franci Gresse                  |
|-------------------|---------------------------------|--------------------------------|
| Telephone Number: | 021 – 526 6012                  | 021 – 526 6022                 |
| Fax Number:       | 021 – 526 9500                  | 021 – 526 9500                 |
| Email Address:    | Dirk.Pretorius@aurecongroup.com | Franci.Gresse@aurecongroup.com |
| Postal Address:   | PO Box 494, Cape Town, 8000     | PO Box 494, Cape Town, 8000    |

*For a detailed description on the public participation process undertaken to date and going forward, please refer to Chapter 4 of the Scoping Report.*

## PROPOSED WAY FORWARD

Cognisance will be taken of all comments in compiling the final Scoping Report, and the comments, together with the Environmental Assessment Practitioner's (EAP) and Applicant's responses thereto, will be included in the final report as a Comments and Response Report (CRR). Where appropriate, the report will be updated accordingly.



The Scoping Report, including the CRR, will be completed and submitted to the DEA for review (see diagram above). The DEA must, within 43 days of receipt of the Final Scoping Report consider it, and in writing –

- Accept the report and advise the EAP to proceed with the tasks contemplated in the Plan of Study for EIA; or
- Refuse Environmental Authorisation
  - If the proposed activity is in conflict with a prohibition contained in legislation; or
  - If the Scoping Report does not substantially comply with the objectives and content requirements for scoping reports in terms of the 2014 EIA Regulations and the applicant cannot ensure compliance with these regulations within the prescribed timeframe.