ENVIRONMENTAL IMPACT ASSESSMENT (EIA)
DEAT REFERENCE NO.: 12/12/20/944

FOR THE PROPOSED ESKOM NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE

FOCUS GROUP MEETING
CITY OF CAPE TOWN
06 AUGUST 2007

PREFACE

The Environmental Impact Assessment (EIA) Project Team (the "EIA Team") wishes to thank (a) Mr Keith Wiseman for coordinating this meeting and (b) all representatives of the City of Cape Town, who attended the Focus Group Meeting (FGM) as part of the Scoping Phase of the EIA.

Should participants who attended the meeting require any changes to these proceedings, please notify the Public Participation Office in writing within two weeks of receipt.

In some instances the name of the stakeholder were not provided, and hence, these details are not captured in these proceedings. Should you as a participant recognise your input, it would be greatly appreciated if you could provide ACER (Africa) Environmental Management Consultants (ACER) with your details.

There are three sets of minutes:

- Set A - Public Meetings
- Set B - Key Stakeholder Workshops
- Set C - Various Focus Group Meetings (as requested by stakeholders)

All minutes are part of the public record and have been placed on the website www.eskom.co.za/EIA under the "Nuclear1" link. Should you wish to receive a specific set, kindly request them from the Public Participation Office.

These minutes have been:

Compiled by: ACER (Africa) Environmental Management Consultants
Reviewed by: ARCUS GIBB (Pty) Ltd
Accepted by: Eskom Holdings Limited, Generation and Enterprises Division

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1. ATTENDANCE

1.1 Attendance – Cape Town City Council

Name	Position
Ms Janet Bodenstein	Review Coordinator – Environmental Resource Management (and the Nuclear 1 EIA Process Reviewer)
Dr Ivan Bromfield	Manager: Specialised Health
Mr Gordon Dindi	Head: Network Control
Mr Ron Haiden	Chief Engineer: Project Planning
Mr Kurt Hendricks	Senior Officer: Health & Safety
Mr Dale Hillebrand	Incident Manager
Mr Brian Jones	Manager: Green Energy
Mr Manfred Kuster	Head of Department: High Voltage
Cllr Marian Nieuwodt	Mayco Member: Planning & Environmental
Mr Paul Prinsloo	Policy Support
Mr Wouter Roggen	Principal: Renewable Energy
Mr Franz Schlaphoff	Manager: Critical Infrastructure
Mr Hennie Schrader	Head: Environmental Health Specialist
Mr Keith Wiseman	Manager: Environmental Management Services

1.2 Attendance - Environmental Consulting Team

Name	Organisation	Role in the project
Ms Jaana-Maria Ball	ARCUS GIBB	EIA Project Manager
Ms Bongi Shinga	ACER (Africa)	Public Participation Consultant
Ms Karin Bowler	Karin Bowler Enterprises	Facilitator

1.3 Attendance - Eskom Holdings Limited

Name	Eskom Division	Role in the project
Mr Tony Stott	Enterprises Division Nuclear Programmes	Senior Manager (Nuclear Stakeholder Management)
Ms Deidre Herbst	Generation Division Environmental Management	Environmental Manager
Mr Dave Wynne	Generation Division Nuclear Portfolio	Corporate Specialist (Project Management)
Mr Mervin Theron	Enterprises Division Project Development	Chief Advisor / Project Manager
Mr Dave West	Corporate Division Audit Department	Internal Auditor

1.4 Apologies

Mr Wiseman apologised for 3 City Council Representatives.

2. WELCOME, INTRODUCTIONS AND OBJECTIVES OF MEETINGS

2.1 Welcome and Introductions

The facilitator, Ms Karin Bowler, welcomed all those present and thanked them for their participation in the Environmental Impact Assessment for the proposed Eskom Nuclear Power Station (NPS). She then introduced the study team members.

The Facilitator stated that this Focus Group Meeting constitute the first engagement with stakeholders as part of the EIA process. The EIA Team and Eskom representatives attended this meeting as part of public consultation and in response to requests from the Cape Town City Council.

2.2 Objectives of the meeting

The primary objectives of the meeting were as follows:

- To introduce and provide the representatives of the City of Cape Town with an overview of the proposed development by Eskom and to introduce the EIA Team and the relevant Eskom personnel.
- To provide the representatives of the City of Cape Town with an overview of the EIA process including opportunities available to I&APs at the various stages of the process.
- To provide an opportunity for the representatives of the City of Cape Town to comment, ask questions and raise issues to be addressed by Eskom and the EIA Team. This includes identification of issues and concerns for inclusion in the Draft Scoping Report.
- To undertake constructive debate and discussion.

3. ESKOM'S STRATEGIC OVERVIEW - PRESENTATION

The summary of the information presented is provided below. The issues raised and discussed following each presentation are summarised in Appendix 1.

Ms Deidre Herbst, Eskom Holdings Limited (Eskom), Generation Division presented the strategic overview of the project. The following sections were covered in her presentation:

- Overview of electricity demand and supply in South Africa
- Primary energy resources and technological options for South Africa
- Major strategic drivers for nuclear power
- The proposed Nuclear-1 NPS

4.1 Overview of electricity demand and supply in South Africa

- From the 1980s through to early 2000s, the growth in demand for electricity followed a trend averaging between 2 and 3 % per annum. However, over the past few years the annual growth in peak demand for electricity has been higher than an average of 4 % per annum.

- The Government's Accelerated and Shared Growth Initiative for South Africa (ASGISA) is aiming for the economy to grow by approximately 6 % per annum into the future. An annual growth of 6 % in the economy implies an annual growth of approximately 4 % in the demand for electricity.
- Eskom planning into the future is therefore based on an average annual growth rate in the demand for electricity capacity of 4 %.
- In 1980, the demand for electricity, the peak demand, was below 20 000 MW. The peak demand has continued to increase compared to previous years; this year the peak demand was just over 36 000 MW (the peak demand was recorded on 5 July 2007 at 36 513 MW).
- At 4 % annual growth in the demand for electricity, the peak demand will increase to just below 80 000 MW by 2025.
- Eskom's net electricity generating capacity is currently just below 40 000 MW. In addition Eskom imports approximately 1000 - 1500 MW of electricity capacity from Cahora Bassa in Mozambique (less when maintenance or repairs are being undertaken at Cahora Bassa or on the transmission lines between Cahora Bassa and South Africa). Eskom will thus need to have added more than 40 000 MW of new power stations to its existing electricity generating capacity in order to be able to meet the projected demand for electricity in 2025.
- Power stations do not last forever. They are maintained, and components can be repaired or replaced when necessary, but eventually it is no longer economically viable to operate, and it becomes more cost effective to shut down the old power station and construct a new power station. Hence in addition to meeting the projected demand, Eskom also needs to prepare for the replacement of power stations that will reach the end of their economic life span after approximately 2025.
- The challenge is to correctly match the supply and demand; economic growth and development will be hampered if the supply of electricity does not match the demand.
- Choosing the best options for electricity generation and the planning for the construction of new power stations must also consider the different types of power stations that are required and their cost (which impacts on the price of electricity), the time taken to construct them, the environmental considerations and their operating characteristics. The total demand for electricity in South Africa is not constant; rather it varies on a 24-hour basis, with peak demand in the early morning and in the late afternoon / early evening. To optimally meet the total demand, it is thus necessary to have both "base load" electricity generating power stations designed specifically to generate electricity continuously at all hours, as well as "peaking" electricity generating power stations designed specifically to generate electricity only during the periods of peak demand. This is achieved by harnessing different energy sources and applying different technologies.
- In South Africa, coal and nuclear power is used for base load electricity generation, while the open cycle gas turbines (using liquid fuel, such as diesel), the two small hydro electric power stations on the Orange River, and pumped storage schemes, are used for peaking and emergency electricity generation.
- In October 2004, the South African Cabinet took the decision that Eskom will be responsible for at least 70 % of the new electricity generating capacity that is required, with Independent Power Producers being responsible for the remaining 30 %.

4.2 Primary energy resources and technological options for South Africa

- **Coal** is the primary energy source for electricity generation in South Africa - approximately 90 % of electricity generation in South Africa is by coal-fired power stations. Eskom coal-fired power stations are specifically designed to burn low-grade coal, which otherwise would not be utilised and would be a waste product from the coal mines. South Africa has significant coal resources and hence coal will continue to be used in the future. However using coal to generate electricity also has its disadvantages: the transportation of coal is very expensive and hence coal-fired power stations are located as close to the mines as possible to maintain their economic viability - this implies that coal-fired power stations are located inland and hence, if wet-cooled, use considerable quantities of scarce water resources, or if dry-cooled are less efficient and still use quantities (although much less) of scarce water resources; the burning of coal gives rise to pollutants – in particular the burning of coal gives rise to emissions of carbon dioxide (CO_2), a greenhouse gas, which contributes to climate change. Eskom continues to monitor and investigate the progress internationally with the commercialisation of more efficient coal-fired power stations. Eskom is also researching underground coal gasification as a means to generate electricity from coal – a pilot facility is being established in Mphumalanga Province near the Majuba coal-fired power station. Eskom also monitors and participates in international forums investigating the possibility of capturing and storing carbon dioxide emissions.
- **Gas:** South Africa's indigenous resources of natural gas are currently not available in sufficient quantities to fuel power stations – hence the South African Open Cycle Gas Turbines use liquid fuel (e.g. diesel). The Open Cycle Gas Turbines are used to help meet the demand for electricity during peak and emergency demand situations since they are very expensive to operate (the diesel price is linked to the dollar price of oil and also is subject to foreign exchange rates). In 2006/7 Eskom constructed two new Open Cycle Gas Turbines in the Western Cape Province, viz. Ankerlig power station at Atlantis, and Gourikwa power station at Mossel Bay, with a combined capacity of just over 1000 MW. Eskom has submitted the necessary environmental and other applications to extend these two power stations by an additional total 1000 MW. Eskom is continuing to investigate being able to access natural gas from the Kudu gas fields in Namibia, the Ibhubesi gas fields off the west coast of South Africa, the gas fields in Mozambique and liquid natural gas from international markets, to generate electricity in combined cycle gas turbine power plants. If sufficient natural gas becomes economically available (the gas price is also linked to oil prices and subject to foreign exchange rates), the possibility exists to convert the new Open Cycle Gas Turbines to combined cycle gas turbines.
- **Renewable energy: Hydro power:** South Africa is a water scarce country and does not have large rivers for hydro power. Eskom has two hydro power stations on the Orange River, the 360 MW (4 units each 90 MW) Gariep power station and the 240 MW (2 units each 120 MW) Vanderkloof power station. The use of these two stations is restricted to peak and emergency electricity demand situations, subject to the availability of water in the Gariep and Vanderkloof dams. Investigations are in progress for an upgrade at Gariep power station. **Wind energy**: An EIA is currently in progress for a wind energy facility of 100 MW on the West Coast of South Africa (near Vredendal). Wind energy is an important complement to other forms of electricity generation. Since the wind does not blow continuously, and since, apart from pumped storage schemes, which use more electricity than what they produce, large scale storage of electricity is not yet possible, wind energy cannot be relied upon for neither base load nor peaking or emergency electricity generation.

- **Solar energy**: An EIA has been undertaken and an environmental impact report has been submitted to the DEAT for a research and demonstration project for a concentrated solar thermal plant of 100 MW near Upington. Mirrors reflect the sunlight onto a central point. The project aims to research and demonstrate the heating of a molten salt at the central point in an intermediate step before boiling water and creating steam to drive a turbine and generate electricity. In principle the molten salt would retain its heat and hence be able to boil water and create steam after the sun is no longer shining. If all the necessary approvals are obtained, Eskom could start construction of the solar thermal plant in 2008/9. If constructed, it would be the biggest facility of its design in the world.
- **Efficiency programme:** Eskom is continuing to investigate ways to improve the use of electricity. Eskom has a demand-side management and energy efficiency programme target of 3 000 MW by 2012 and 8 000 MW by 2025. 8 000 MW is equivalent to avoiding the construction of two large coal-fired power stations.
- **Importing electricity via the transmission network**: Eskom already imports electricity from neighbouring countries, primarily from the Cahora Bassa Hydro Electric Power Station in the northern part of Mozambique. Between 1000 and 1500 MW hydro power capacity is imported from Cahora Bassa, although some of this (about 300 MW) is sent back to the Southern part of Mozambique via South Africa. Eskom is participating in a project to harness the hydro power potential of the Inga Falls on the Congo River in the Democratic Republic of Congo. This is a long-term project, which includes the construction of a very long transmission line from the DRC, through Angola and Namibia into South Africa and Botswana. In order to avoid an over-dependency on our neighbouring countries for electricity, Eskom will limit the import of electricity.
- **Nuclear:** South Africa is rich in uranium resources, which can be used to generate electricity in nuclear power stations. Eskom is thus investigating expanding its nuclear power generation capacity to help meet the future demand for electricity.

It is Eskom's stance that ALL of these primary energy resources need to be harnessed using the appropriate technology to provide the electricity that South Africa requires to support its economic growth and development.

4.3 Major strategic drivers for Nuclear

- Eskom needs new base load electricity generating capacity – only coal and nuclear power can at this stage provide base load capacity
- Climate Change and the contribution made by the burning of fossil fuels such as coal to this phenomenon are gaining an increasing amount of attention, both nationally and internationally. South Africa needs to reduce its emissions of greenhouse gases and nuclear power is one of the options for Eskom to achieve this objective.
- One advantage of nuclear power stations is that, unlike coal-fired power stations, they can be cost-effectively located away from the source of fuel, and hence can be located near the main economic growth centres. Currently, there is significant growth along the coast line (the Cape Town region in the Western Cape, the Port Elizabeth region in the Eastern Cape), and in the Upington/Sishen region in the Northern Cape. Locating power stations (of any kind) near the economic growth centres reduces the amount of electricity that has to be transmitted through the transmission network system and hence reduces the electricity losses incurred when transmitting electricity along long transmission lines.

- All thermal power stations need cooling of the steam used to drive the turbines. If located on the coast, they can use seawater for cooling and not scarce fresh water resources.
- If a coal-fired power station is located on the coast, Eskom would need to transport coal from the coal-fields in Mphumalanga or Limpopo Provinces to the areas where the power station is located, which is not economically viable. A large coal-fired power station of 3600 MW requires approximately 40 000 tons of coal per day when operating at full power. Assuming transportation by rail, that each train wagon can take a load of 80 tonnes, and that each train has 50 wagons, then 10 train loads of coal would need to travel from the coal fields and be off-loaded at the power station every day.
- A nuclear power reactor only requires to be refuelled once every 18 months with approximately 25 – 40 tonnes of fuel, depending on the size of the reactor. The fuel is easily transported to the nuclear power station from the factory where it is manufactured.
- South Africa has more than sufficient uranium deposits to meet the requirements for fuel for the proposed nuclear power station over its entire lifetime.

- ❖ Eskom requires 40 000 megawatts (MW) of additional electricity generating capacity to be constructed in phases over the next 20 years.
- ❖ The Eskom Board has approved the **investigation** of up to 20 000 MW of nuclear capacity by 2025. The other 20 000 MW will come out of other generation mixes, e.g. renewables, coal, gas etc.
- ❖ Eskom's target for savings associated with demand side management is 3 000 MW by 2012 and 8 000 MW by 2025. 8 000 MW is equivalent to two coal-fired power stations.

4.4 Nuclear Technology Selection

- Koeberg Nuclear Power Station has been safely operating for the past 23 years. The two nuclear reactors at Koeberg are the Pressurised Water Reactor (PWR) technology.
- Eskom, the National Nuclear Regulator (NNR), and the local suppliers of maintenance services are familiar with PWR technology.
- Eskom investigated the different nuclear power station technologies available in the world for large scale power stations and has deemed it prudent to continue with the PWR technology.
- The PWR technology for the proposed new nuclear power station would be a more advanced form compared to the technology used in the existing Koeberg NPS.

4.5 Overview of the proposed nuclear power station infrastructure

A picture of a model of the Koeberg NPS and an aerial photograph of Koeberg were used to provide an overview of the infrastructure that would be required for the proposed NPS. Some of the key features include the following characteristics:

- The footprint of the proposed NPS is approximately 31 hectares.
- There are turbines, intake basin (uses sea water for cooling), administration buildings, transmission yard, engineering building, turbine hall (which consists of a turbine and generator), mechanical workshops, etc.

- Main security fence.
- Restricted area, which require permits to access.
- The conservation area, which is open to the public for recreational activities.

4.6 Regulatory Processes (associated with the nuclear power station)

- The DEAT is the lead environmental authority for the EIA for the proposed power station. Provincial environmental departments of the Northern, Western and Eastern Cape are commenting authorities. Five different sites are being investigated as part of the EIA.
- Transmission lines are required between the proposed power station and the existing national transmission network to enable the electricity generated by the proposed power station to be fed into the national transmission network. Separate EIAs will be undertaken for the proposed transmission lines. The EIAs for the proposed transmission lines will be co-ordinated to align as close as possible to the EIA for the proposed nuclear power station.
- An application for a nuclear installation licence will be submitted to the National Nuclear Regulator (NNR) in terms of the requirements of the National Nuclear Regulator Act. The NNR Act provides for the holding of public hearings.
- The NNR and DEAT will ensure that there is synergy between the Nuclear Licensing Process and Environmental Authorisation Process.
- An application to the National Energy Regulator of South Africa (NERSA) for an electricity generation licence will be made at the appropriate time.
- Zoning permits, water permits, disposal of domestic waste, and other authorisations will also be required. The respective applications to the relevant Authorities will be made at the appropriate time.

If all necessary approvals are obtained, construction could start in 2009 or early 2010 with the first unit coming into operation in late 2016.

4. ENVIRONMENTAL IMPACT ASSESSMENT PROCESS - PRESENTATION

The outline of the information presented is provided below. The issues raised and discussed following each presentation are summarised in Appendix 1.

Ms Jaana-Maria Ball, EIA Project Team Leader, ARCUS GIBB (Pty) Ltd (ARCUS GIBB) presented an overview of the EIA Process. The following sections were covered in her presentation:

- Purpose of the EIA Process
- Framework for the EIA Process
- Responsibilities of the various EIA role players
- Environmental Impact Assessment (EIA)
  - Scoping Phase
  - Impact Assessment Phase
- Potential Environmental Impacts
- Public Participation Process (PPP)

5. WAY FORWARD AND CLOSING REMARKS

5.1 Facilitators concluding remarks

The facilitator stated that all issues raised had been captured and will be included in the minutes, which will be made available to stakeholders. She also reminded all stakeholders that all comments should be submitted to ACER using the various means available:

Tel: 086 010 4958
Fax: 035 340 2232
Email: nuclear1@acerafrica.co.za
Postal address: PO Box 503, Mtunzini, 3867
Website: www.eskom.co.za/eia) on the "Nuclear 1" link

5.2 Submission of initial comments on Scoping

The original deadline date for the submission of comments during scoping was 20 July 2007.

Due to the large public interest shown in the proposed project, the initial comment period was extended by an additional five (5) weeks making the closing date 28 August 2007. All I&APs were requested to use the additional comment period to submit any or additional comments to ACER.

5.3 End of comment period and way forward

At the end of the comment period a Draft Scoping Report (DSR) will be prepared and made available to the public for review and comment. The DSR will be accompanied by an Issues and Response Report (IRR). All I&APs will have opportunities to review the report and to discuss its contents in public meetings, before it is finalised. Closer to the time, advertisements will be placed in the newspapers and letters will be sent to I&APs notifying them of exact details and venues for viewing the DSR and exact details concerning public meetings.

5.4 Thanks and Closure

The facilitator thanked all Interested and Affected Parties (I&APs) and the study team for their input and participation in the EIA and closed the meeting.

6. ISSUES AND COMMENTS RAISED AND DISCUSSED

The table **(pages 12 - 18)** presented below details all issues and concerns which were raised and discussed at the Focus Group Meeting (FGM).

Please note:

- ACER has tried to capture and reflect as accurately as possible all issues raised at the meeting.
- Should you wish to edit your comments, please advise ACER within two weeks of receiving these minutes.

APPENDIX 1: RECORD OF ISSUES RAISED AND DISCUSSED

Note: Should you as a participant at the meeting not agree to the way in which ACER has captured your issue, please submit your requested changes in writing within two weeks of receiving this document

No	COMMENT	RESPONSE OR ACTION
1	What is happening with the graphical presentation on electricity demand - the load increases, more power stations are built but the graph does not indicate the change?	Power stations have a specific lifecycle. The graph shows the total sum of electricity available based on operating power stations, the addition of new power stations in the year that they started operating and the removal of power stations in the year that they reach the end of their economic life. The assumption is made that the power stations in general will have an economic lifetime of 50 years. After 2025, some of the biggest power stations in South Africa will be coming to an end of their life span. This shows that in addition to Eskom's requirements to meet South Africa's existing demand, Eskom also needs to prepare for the replacement of power stations that have reached the end of their life span.
2	What is Koeberg's current capacity?	1, 800 MW
3	Would like to confirm that 50 % of the new capacity (40, 000 MW) will be from nuclear and the other 50 % will come from other sources such as renewables, coal, etc.	The Eskom Board has requested that investigations are undertaken for 50 % of the required 40 000 MW to come from nuclear power (i.e. 20 000 MW).
4	Considering the electricity requirements, one can assume that all five sites will be used.	Yes, provided all sites are technically and environmentally feasible. The EIA is being undertaken for the five alternative sites. Based on the investigations, Eskom would prioritise the most preferred site for the Nuclear 1 project. The EIA will also determine the carrying capacity of each site. It is important to note that the current EIA is only for one NPS.

No	COMMENT	RESPONSE OR ACTION
5	Can Eskom provide more detail on the plant type? Has Eskom signed any agreements with suppliers?	Eskom has decided to stay with the Pressurised Water Reactor (PWRs) technology. Koeberg is a PWR technology and hence Eskom and South Africa has experience with this kind of technology. It is also the nuclear technology that is currently most favoured by countries that are constructing nuclear power stations. Eskom has not entered into agreements with preferred suppliers. To date, Eskom has only identified the potential suppliers, AREVA for the EPR design and Toshiba-Westinghouse for the AP1000 design. No contracts have been signed. Eskom anticipates that the formal negotiations will start later in 2007, with contracts to be signed later in 2008, subject to the necessary approvals being obtained.
6	Why are Eskom not using the Pebble Bed Modular Reactor (PBMR) technology?	The pebble bed modular reactor (PBMR) technology is being developed by the PBMR (PTY) Ltd company. In particular, a demonstration power plant is under development. Eskom has submitted applications for an environmental authorisation and for a nuclear installation licence for the PBMR demonstration power plant to be constructed on the Koeberg site. The EIA and nuclear licensing processes are in progress. If successful then Eskom will purchase from the PBMR (Pty) Ltd Company power stations that use the pebble bed modular reactor technology, subject to normal commercial and regulatory requirements (authorisations, licences, permits etc) being met. As indicated previously, Eskom is investigating 20 000 MW (of the required 40 000 MW by 2025) to be from nuclear power. The PBMR would not be able to provide this amount of capacity.
7	A health assessment needs to be undertaken for the public in general and not only for the site.	Comment noted with thanks.
8	Are you going to recommend one site for Nuclear 1?	Based on the investigations, the EIA will identify the most preferred site.

No	COMMENT	RESPONSE OR ACTION
9	Eskom is limited to one site in the Eastern Cape unlike Northern or Western Cape provinces.	Yes. The remainder of the Eastern Cape coastline was found unsuitable due to sensitivity, geological conditions and seismic risk.
10	It is important that there is recognition of issues and there is understanding of how these issues will be addressed (whether through the EIA or other regulatory processes to follow). The City of Cape Town City would like to better understand the Nuclear-1 process. The current process appears to be fragmented.	Comment noted with thanks. DEAT and the NNR have a co-operative agreement to facilitate decision-making on the proposed project. In terms of the approach, the study team recognises the importance of providing the right level of detail for the EIA process. In addition, it is hoped that the cooperative agreement between DEAT and NNR will assist to determine the level of detail each process should cover. Although this is a challenge, Eskom is confident that DEAT and NNR have adopted the right approach.
11	A while ago, the Government published that they are planning to introduce Independent Power Producers (IPPs), what has happened to that? Will Eskom not end up with excess generation capacity and this could well distort Eskom's projections?	There has been a strong drive from the Government to bring in IPPs. In 2004, the Government indicated that Eskom would build approximately 70 % of the future power stations with the expectation that the remaining 30 % will come from IPPs. The electricity demand and supply projections into the future are reviewed on an annual basis to ensure that they are correct. Note that Eskom requires more power stations installed than what is actually required by the demand for electricity at any point in time. This is called "reserve margin", and provides for reserves of generating capacity to enable power station units to be shutdown for scheduled maintenance, as well as provide for unexpected shutdown of power station units for repairs when there are failures. However, Eskom's reserve margin is low, at between 8–10 %, while the international norm is at least 15 %. Hence, Eskom's expansion plans take into account the need to build sufficient power stations so that the reserve margin increases to above 15 %.

No	COMMENT	RESPONSE OR ACTION
12	A number of countries are recognizing the need to use Nuclear as an option for electricity generation. What are the risks of supply in terms of our local resources and reserves?	With respect to uranium reserves: Every 1000 MW of nuclear power capacity needs approximately 200 tonnes of natural uranium per annum. Thus, 20 000 MW of nuclear power operating for a 60 year period would require about 240 000 tonnes of natural uranium. South Africa's Reasonable Assured Resources (RAR) of uranium is estimated to be 521 000 tonnes, with a further 211 000 tonnes as inferred resources. [Reference: IAEA/NEA "Uranium 2005: Resources Production and Demand" – the "Red Book"]. Thus, South Africa has enough uranium resources to support a bigger than 20 000 MW nuclear programme for the envisaged 60 year lifetime of the modern nuclear power plants.
13	It appears that there are a number of decisions that will be made for this NPS. This therefore calls for proper coordination. Isn't there a way to make the process clearer in terms of decision-making? It is not clear how a decision will be made. The current process appears to be a sequential rather than an integrated process. The importance of coordination is also presented in the National Environmental Management Act.	The Director General from the Department of Public Enterprises, Trade and Industry, DEAT, Minerals and Energy (DME) and National Energy Regulator (NERSA) meet once a month to start discussions around these issues. It is hoped that these meetings will start to bring the kind of integration and streamlined decision-making at a higher level. Nevertheless, it is still challenging for both Eskom and the Government.
14	Does Eskom understand South Africa's strategy regarding the utilization of uranium into the future?	As indicated previously, the proposed nuclear power programme, if authorised, would require approximately 240, 000 tons of uranium for the 60 year of operations. South Africa has sufficient reserves of uranium to meet this requirement. However, natural uranium must be enriched (to between 3 and 5 % of the U-235 isotope) and manufactured into fuel elements for use in a pressurized water reactor. Currently, the enrichment of uranium and the manufacture of fuel elements for Koeberg is performed overseas. Government is investigating re-establishing enrichment and/or fuel manufacturing capabilities in South Africa. The Department of Minerals and Energy DME) is also planning to declare uranium as a strategic resource in the South Africa. A Nuclear Policy and Strategy is currently being developed by DME that addresses these issues.

No	COMMENT	RESPONSE OR ACTION
15	In terms of information gathered to date, is Cape Town a unique situation? What has happened in other countries, such as Japan? How far are Nuclear Power Stations located from areas where there are people? What is happening with emergency evacuation zones? Can the EIA look at comparative studies from similar cities around the world?	Different countries have different requirements regarding developments around nuclear power stations. Some countries allow more development closer to nuclear power stations. For the proposed nuclear power station Eskom is considering the latest design of Pressurized Water Reactor (PWR) technology. Internationally, these designs have formal emergency planning zones less than 16 km. The NNR will, however, determine the extent of the required zone based on a safety assessment of the design of the proposed nuclear power station and the proposed site and environs. The EIA Team has reviewed impact assessments for proposed NPS worldwide .
16	The City of Cape Town bears direct and indirect costs of having a NPS. The City of Cape Town would like to understand how these costs would be taken care of prior to building a NPS.	The Study Team requested Mr Keith Wiseman to make a submission, which would be considered in compiling the Terms of Reference for the Economic Specialist study.
17	What process does Eskom envisage for the site selection, assuming that the five sites are equivalent? Will the issues around power supply, transmission requirements, etc. be considered in making a decision?	Transmission integration is one of the parameters that will be considered, including the associated financial considerations. Apart from the EIA study, the sites must also be investigated from a nuclear licensing perspective. A Site Safety Report must be compiled for approval by the NNR as part of the nuclear installation licence application.
18	How will Koeberg be traded off against other sites assuming that Eskom has Koeberg as the preferred site?	Eskom does not have a preferred site at this stage.
19	There is a need for Eskom and the City of Cape Town to have discussions about the current evacuation policy and plan. Realistically, the City of Cape Town does not have the capacity of undertaking evacuation, should it be required for Koeberg. Will Eskom consider this for the proposed NPS?	Eskom noted this comment. The NNR conducts regular emergency planning exercises, witnessed by national and international observers, to demonstrate the viability of the emergency plan for Koeberg. These exercises normally include evacuation. To Eskom's knowledge these exercises have successfully

No	COMMENT	RESPONSE OR ACTION
		demonstrated the viability of the emergency plan. Although the risk of an accident is very low, the NNR nevertheless requires emergency planning to be undertaken. This will also be the case for any future nuclear power station.
20	*Assuming Duynefontein Site is a preferred site for Nuclear 1:* ❑ We need to look at the whole process holistically. ❑ The possibility of a reduced safety zone - if we are considering that there is a potential for a PBMR Demonstration Power Plant and another Nuclear Reactor.	Comment noted with thanks. Note that at this stage there is no preferred site for Nuclear-1.
21	In terms of the information provided during the PBMR process, it was highlighted that one can keep millions of these radioactive tennis balls for up to 18 years. Has the 18-year period been reviewed?	The question regarding the time period for PBMR pebbles needs to be addressed through the PBMR EIA process (however, note that the 18-year period is incorrect – it appears to be a misunderstanding). The proposed nuclear power station is of the pressurized water reactor (PWR) design, and hence the nuclear fuel elements are not of the PBMR pebble type, but are of the design similar to that used in Koeberg. Currently for Koeberg, spent fuel is retained at Koeberg in spent fuel storage facilities (pools and casks) licensed by the NNR. The pools and casks have sufficient capacity for the 40-year design life of Koeberg. The SA Cabinet approved a National Radioactive Management Policy and Strategy in 2005. The Department of Minerals and Energy (DME) is currently drafting legislation to implement the Policy. Two options for the long-term management of spent fuel are possible: (a) direct final disposal of the spent fuel in a deep underground geological disposal facility, or (b) reprocessing of the spent fuel to extract unused uranium and plutonium for re-use and concentration and disposal of the residual (about 3-4 % of the spent fuel) high level waste in a deep underground geological disposal facility. Both options are being pursued internationally.

No	COMMENT	RESPONSE OR ACTION
		For the proposed NPS, Eskom intends to follow the same practices for the management of radioactive waste as followed at Koeberg, under the regulatory control of the NNR and subject to the requirements of the National Radioactive Waste Management Policy and Strategy and any associated legislation or regulations.
22	Where does the enrichment of uranium take place?	At the moment, enrichment of uranium is not being undertaken in South Africa. However, Government is investigating re-establishing enrichment and/or fuel manufacturing capabilities in South Africa. A Nuclear Policy and Strategy is currently being developed by DME that addresses these issues.
23	Would the fuel infrastructure available at Pelindaba not be adaptable for uranium enrichment?	In principle yes – the enrichment and fuel manufacturing infrastrucuture could be re-established at NECSA's Pelindaba facilities. The economic viability of this is under investigation by NECSA and Government.
24	The role of the NNR is questionable. One has limited information, while it forms a huge component of the project. This is a major concern.	Comment noted. Only once the vendor and hence actual design for the proposed nuclear power station has been chosen can Eskom submit the application for a nuclear installation licence. This is anticipated for the middle of 2008.

APPENDIX 1: PRESENTATIONS

Eskom's Strategic Planning Overview

Note: The size of this presentation is 4.21 MB.

Environmental Impact Assessment (Technical and Public Participation) Process

Note: The size of this presentation is 2.40 MB.

Both presentations can either be downloaded on the website (www.eskom.co.za/eia) or requested from ACER (Africa) at nuclear1@acerafrica.co.za or 086 010 4958

APPENDIX 2: ATTENDANCE REGISTERS

Please note: Attendance Registers can only be made available upon request