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

FOR THE PROPOSED ESKOM NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE

MEETING WITH THE EASTERN CAPE DEPARTMENT OF ECONOMIC DEVELOPMENT AND ENVIRONMENTAL AFFAIRS
27 JULY 2007

PREFACE

The Environmental Impact Assessment (EIA) Project Team ("the EIA Team") wishes to thank all representatives from the Eastern Cape Department of Economic Development and Environmental Affairs (EC DEDEA) for attending the meeting.

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 – EC Dept of Economic Development and Environmental Affairs (DEDEA)

Name	Positions
Mr Andries Struwig	Assistant Manager: Environmental Impact Management
Mr Henni De Beer	Biodiversity Manager
Mr Jan Kapp	Assistant Manager: Coastal Management
Mr Thembinkosi Tyali	Assistant Manager: Biodiversity
Mr Alan Southwood	Environmental Scientist
Ms Lulama Macanda	Manager: Environmental Impact Management

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

1.3 Attendance – Eskom Holdings Limited

Name	Eskom Division	Role in the project
Mr Tony Stott	Enterprise Division Nuclear Programmes	Senior Manager (Nuclear Stakeholder Management)
Ms Deidre Herbst	Generation Division Environmental Management	Environmental Manager

2. WELCOME AND INTRODUCTIONS

Mr Andries Struwig, Eastern Cape: Department of Economic Development and Environmental Affairs (DEDEA) welcomed all present and thanked them for attending the meeting to discuss the proposed Eskom Nuclear Power Station (NPS).

He then requested the Project Team to continue with the proceedings of the meeting.

3. OBJECTIVES OF THE MEETINGS

The primary objectives of the meeting were as follows:

- To introduce and provide the DEDEA with an overview of the proposed development by Eskom and to introduce the EIA Team and the relevant Eskom personnel to the Authorities.
- To provide the Authorities 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 Authorities to provide the EIA Team with initial comment, ask questions and raise issues with respect to the proposed NPS.
- To undertake constructive debate and discussion.

4. 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.

Mr Tony Stott, Senior Manager, Nuclear Stakeholder Management, Eskom Enterprises Division presented a strategic overview. The following sections were covered in the 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-dependent 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. This 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 NPS 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.

5. 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 presented an overview of the Environmental Assessment 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
  - Scoping Phase
  - Impact Assessment
- Potential Environmental Impacts
- Public Participation Process

6. THANKS AND CLOSURE

On behalf of the study team, Ms Ball thanked the Eastern Cape Department of Economic Development and Environmental Affairs for their input and participation in the EIA and closed the meeting.

7. ISSUES AND COMMENTS RAISED AND DISCUSSED

The table **(pages 11-18)** presented below details all issues and concerns, which were raised and discussed at the meeting.

Please note:

- ACER has tried to capture and reflect as accurately as possible all issues raised at various public meetings.
- Should you wish to edit your comments, please advise ACER within two weeks of receiving these minutes.
- In some cases a name was not captured during the meeting, this in no way diminishes the value of the issue or concern raised.
- Should you identify your input and would like your name to be registered next to it, please advise ACER.

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

<table>
<tr><th>No</th><th>COMMENT</th><th>RESPONSE</th></tr>
<tr><td>1</td><td>How many units will each power station contain?</td><td>For the proposed NPS for which this EIA is being undertaken, Pressurized Water Reactor designs from two vendors are being considered. Depending on which design is used, the proposed power station could have two or three units. The total capacity of the station would be between 3200 and 3500 MW depending on the design that is used. The EIA will, however, be carried out for 4000 MW to ensure conservatism.</td></tr>
<tr><td>2</td><td>What is Eskom’s reserve margin?</td><td>Eskom’s reserve margin is currently between 8 and 10 %. Internationally, the norm is that the reserve margin should be at least 15 %.</td></tr>
<tr><td>3</td><td>In terms of power demand, there is an actual demand and perceived demand? What is the actual demand?</td><td>The actual demand is the historical demand, measured by two different parameters – the peak capacity (in megawatts - MW) demand in each year, and the total energy (in gigawatt hours – GWh) used in each year.

<table>
<tr><th>Financial Year</th><th>Peak capacity (MW)</th><th>Year on year growth (%)</th><th>Total energy (GWh)</th><th>Year on year growth (%)</th></tr>
<tr><td>2007/8</td><td>36513</td><td>4.9%</td><td></td><td></td></tr>
<tr><td>2006/7</td><td>34807</td><td>4.0%</td><td>243 926</td><td>5.0%</td></tr>
<tr><td>2005/6</td><td>33461</td><td>- 2.1%</td><td>232 295</td><td>1.0%</td></tr>
<tr><td>2004</td><td>34195</td><td>7.1%</td><td>229 970</td><td>5.3%</td></tr>
<tr><td>2003</td><td>31928</td><td>1.0%</td><td>218 412</td><td>5.4%</td></tr>
</table>
(Source: Eskom Annual Report)

The planning for the future is based on a projected demand of an average of 4 % per annum over the 20 year period. The projections are reviewed on an annual basis.</td></tr>
</table>

No	COMMENT	RESPONSE
4	What kinds of technology is Eskom looking at?	Eskom is considering the two plant types, i.e. AP 1000 and EPR. They are both Pressurised Water Reactors technologies.
5	What are the differences in the two technologies, i.e. AP 1000 and EPR?	Each AP1000 unit is a 2-loop, 2 steam generators Pressurized Water Reactor design, rated at 1117 MW electrical power. Each EPR unit is a 4-loop, 4 generators Pressurized Water Reactor design, rated at 1600 MW electrical power. There are many differences in the detailed design. More information can be obtained off the respective web sites: AREVA EPR: www.areva-np.com/scripts/info/publigen/content/templates/show.asp?P=1655&L=US Westinghouse AP1000 http://www.westinghousenuclear.com/AP1000/index.shtm
6	Recently, there have been a lot of problems at Koeberg NPS. Please provide details on these problems.	There have been a few incidents, which resulted in one or more of the units at Koeberg being shutdown while repairs have been undertaken. The majority of these incidents have not involved the nuclear reactor system at all. Since nuclear safety is the priority, the reactors have been shutdown and held in a safe state while investigations and repairs on other parts of the plant have been undertaken. Examples of the incidents are: • automatic controlled shutdown of unit 1 due to damage to the generator in early 2006; note that all power stations (wind, solar thermal, gas, coal and nuclear) have generators • automatic controlled shutdown of unit 2 on a number of occasions in early 2006 due to problems with the transmission infrastructure • automatically controlled shutdown of unit 2 in November 2006 due to a fault on the turbine control system • automatic controlled shutdown on unit 1 in January 2007 due to a fault on the turbine control system • voluntary controlled shutdown of unit 2 in March 2007 due to potential damage to part of the transmission system on the power station site • automatic controlled shutdown on unit 2 in June 2007 due to a fault on the generator exciter water cooling system

No	COMMENT	RESPONSE
7	There are number of processes, which are mutually exclusive, referring to the nuclear licensing process, waste disposal, site selection and transmission power lines.	Yes. DEAT and the NNR have a co-operative agreement to facilitate decision making on the proposed project.
8	In terms of the five alternative sites being investigated, is Eskom intending using all of them?	This EIA is for one proposed NPS on one of the five sites. However, Eskom's investigation into nuclear power is for up to 20 000 MW. This it is possible that all five sites would eventually be used, subject to the necessary environmental and other authorisations that are required being granted.
9	Does Eskom own all five sites?	Ownership of the land comprising the five alternative sites is as follows: ▪ Eastern Cape, Thyspunt – Eskom owns 95 % of the land. ▪ Western Cape, Bantamsklip – Eskom owns 50 % of the land. The State owns the remaining 50 % of the land. ▪ Northern Cape, Brazil Site – The State owns the land. ▪ Northern Cape, Schulpfontein Site – De Beers Consolidated Mines owns this property. ▪ Western Cape, Duynefontein Site – Eskom owns 100 % of the land.
10	Will it not be prudent to prioritise the safety of the proposed sites prior to undertaking an EIA? When will the site safety investigations be undertaken? Mr Andries Struwig indicated that he was involved in the compilation of the Spatial Development Plans for Kouga Municipality. At the time, it was decided that some of the developments could not go ahead due to findings of geological studies conducted at the time, seismic risk, etc. How does such information affect Thyspunt as a viable site?	These investigations are in progress. Some of the activities produce data that is required by both the EIA and the Nuclear Licensing processes. Site Safety reports will be produced for assessment by the NNR as part of the nuclear licensing process. This information will be incorporated into the EIA.
11	If the safety distance is not relevant anymore for the proposed NPS, how is Eskom planning to deal with the emergency evacuation zones, the ability to evacuate in the eventuality of an accident.	For the proposed NPS 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 requirement for the emergency plans and 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 environment.

No	COMMENT	RESPONSE
12	Is it not given that the Thyspunt site will be developed? People have been made to understand that Thyspunt site would be developed.	The maximum capacity for each site will be assessed and identified as part of the EIA. The EIA and nuclear licensing processes will determine the viability of each site. However, should all sites be found to be technically and environmentally feasible, all five sites may be used in the future. It is important to note that the current EIA is only for one NPS, with associated infrastructure, of the Pressurised Water Reactor (PWR) type technology.
13	In terms of the Coastal Management Act, no development would be allowed within 1 km from the coastal zone. It was suggested that a meeting be held with the Eastern Cape Regional Coastal Working Group (ECRCWG) in order to discuss the coastal management issues associated with the proposed NPS. The ECRCWG will meet on 30 August 2007.	Comment noted with thanks. The Study Team agreed to engage with the ECRCWG and attend the meeting on 30 August 2007.
14	Are there any alternatives of electricity generation that Eskom is considering, e.g. electricity generated from Cohara Bassa, use of renewables, etc?	The following are some of the initiatives in progress: **Coal**: 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:** 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.

No	COMMENT	RESPONSE
		If sufficient natural gas becomes economically available (the gas price is also linked to oil prices and subject to foreign exchange rates), the possibility also 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.

No	COMMENT	RESPONSE
		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. 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.
15	What is Eskom's strategy towards the reduction of greenhouse gases?	At the moment South Africa does not have commitments to reduce carbon dioxide emissions. This may, however, change after 2012. Eskom has made climate change a significant focus of their business. Therefore, Eskom is looking at energy efficiency and non- or low-CO_2 emitting generating technologies. Nuclear power is one such technology.
16	Since Eskom experienced problems with power shortages, blackouts, etc, has there been any change in the electricity demand or electricity consumption in the Western Cape area?	Eskom has strongly promoted energy efficiency and demand side management. During the first quarter of 2006, during the power shortage situation in the Western cape, Eskom noticed a decrease in power consumption.
17	Eskom has a mandate to provide electricity and their main revenue comes from electricity consumers, i.e. electricity sales. Eskom cannot continue building power stations forever; there is a need for Eskom to manage the electricity demand.	Comment noted. Energy efficiency and demand side management forms an important aspect of Eskom's business.

No	COMMENT	RESPONSE
18	How often does the Study Team want to meet with the Eastern Cape Department of Economic Development and Environmental Affairs (DEDEA)?	The next meetings should happen during the review periods of the Draft Scoping Report (DSR) and Draft EIR. In addition, should there be additional opportunities to engage with the Department, the EIA Team will consider them. Also, if DEDEA officials are chairing some working groups or committees, an invitation can be extended to the EIA Team to attend and make presentations.
19	It would add value for the Environmental Authorities to have an opportunity to visit all other proposed sites. However, it is recognised that it may be impossible to fit in site visits in their current schedules.	This matter was discussed but no decision was made. The matter is to be revisited in the future.
20	There are issues around waste disposal. What is the arrangement for waste disposal for the proposed NPS?	Radioactive waste is internationally categorised into three levels: **Using Koeberg (1800 MW net output) as an example:** L**ow-level radioactive** waste consists of day-to-day refuse such as paper, gloves, plastic containers, disposable overalls, overshoes etc, which have low traces of radioactive contamination. It is compacted into metal drums (200 litre drums). These drums are transported by road to Vaalputs, the National Radioactive Waste Disposal site in the Northern Cape for near surface disposal. Vaalputs is managed by NECSA on behalf of the State, in terms of a licence issued by the NNR. The level of radioactive in the metal drums decreases with time; after approximately 30 years, the level of radioactivity is equivalent to natural background levels. **Intermediate level waste** consists of radioactive resins and sludges, spent filter cartridges and scrap pieces from maintenance work. Intermediate-level waste is solidified by combining it into a sand/cement mix, which is poured into concrete containers, which are transported to Vaalputs for near surface disposal. The level of radioactive in the concrete containers decreases with time; after approximately 300-400 years, the level of radioactivity is equivalent to natural background levels. **Spent fuel** or h**igh-level radioactive waste:** The 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.

No	COMMENT	RESPONSE
		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. For proposed nuclear power station, Eskom will follow the same practices for the management of radioactive waste as discussed above, under the regulatory control of the National Nuclear Regulator and subject to the requirements of the National Radioactive Waste Management Policy and Strategy and any associated legislation or regulations.
21	Would Eskom be prepared to look at various ways to mitigate the impacts arising from the proposed Nuclear Power Station?	Yes.
22	Is there a problem with the Pebble Bed Modular Reactor (PBMR)? When it was introduced, it was an attractive technology.	The Pebble Bed Modular Reactor (PBMR) technology is being developed by the PBMR (PTY) Ltd company. Eskom has submitted applications for an environmental authorisation and for a nuclear installation licence for a PBMR demonstration power plant to be constructed on the Koeberg site. The EIA for the PBMR Demonstration Power Plant is in progress. Pending the successful operation of the Demonstration Plant, Eskom will purchase PBMR power stations, subject to normal commercial conditions and regulatory requirements (authorisations, licences, permits etc) being met.

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