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Your Ref: Email received 03 August 2011

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Dear Ms Dittke

RE: ESKOM EIA CONCERNS FOR THE PROPOSED NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE (DEA Ref. No: 12/12/20/944)

Comment 1:

This letter is in response to the Revised Draft EIR for the proposed Nuclear-1 Power Station (NPS). There are a number of concerns with the DEIR which I would like to raise:

First, the EIAR fails to consider the economic impacts that the construction of the NPS will have on broader South Africa (rather than the economic impacts on the local communities that was submitted by the EAP).

Response 1:

Your comment is noted. Although the Environmental Impact Assessment for the Nuclear-1 Power Station is a site-specific assessment tool the Economic Report (Appendix E17 of the Revised Draft EIR Version 1 – Section 3.3) prepared by Conningarth Economists and Imani Development (SA) (Pty) Ltd nevertheless conducts a macroeconomic equilibrium analysis in order to quantify the macroeconomic impact associated with the possible construction and operation of the Nuclear-1 Power Station.

The report acknowledges that, as the nuclear power station is such a large capital investment (equivalent to that of six times the capital investment in Gautrain), the economic ripple effects will go far beyond its direct boundaries. We refer the author to section 3.3 of the report for an expanded discussion.

Comment 2:

Second, the EIAR fails to assess worst-case scenario impacts, a particularly important point in light of what has happened at Fukushima.

Response 2:

Thank you for your comment. It is acknowledged that the incident at Fukushima as a result of this natural disaster has highlighted many important safety factors in terms of the future of nuclear energy and is indeed a stark reminder of the unpredictability of the natural environment. However it is also well known that South Africa is located on a vastly more stable tectonic environment than Japan, which is situated close to a major subduction zone within the Pacific Ocean.

Nevertheless, the Revised Draft EIR Version 2 will include an analysis of “Beyond Design Basis Accident” scenarios like Fukushima to assess the implications for Nuclear-1. This assessment will consider the differences in technology between Fukushima Daiichi, which is based on a late 1960’s design, and the Generation III nuclear power generation technology to be used for Nuclear-1. Based

on the newer nuclear technology, the probability and consequence of meltdown incidents, such as happened at Fukushima, is greatly reduced, if not eliminated, if the same events were to take place at a Generation III nuclear power station.

Comment 3:

Third, it does not consider the impacts and costs of waste and its disposal, and additionally, there is no long term solution for the waste.

Response 3:

Your comment is noted. The nature and impacts of construction waste is discussed and assessed in Chapters 3, 5, 9 and 10 of the Revised Draft EIR Version 1 and in its associated Specialist Studies (Appendix E). The nature and impact of radiological waste is described and assessed in Chapters 3, 9 and 10 of the Revised Draft EIR Version 1 and in the Radiological Waste Assessment (Appendix E29)

It is acknowledged that the issues of radioactive waste management is important and integral to debate surrounding nuclear energy and as stated the current global practice is long-term storage of the spent fuel at the nuclear power station. However please note that a Radioactive Waste Management Institute has been legislated by the Department of Energy and one of the functions of this institute will be to identify a repository for high level waste in South Africa.

In the interim, Eskom will follow the internationally accepted practice of permanent on-site storage of High-Level Waste, following practices that allow for the safe storage of such waste on site.

Comment 4:

Fourth, it does not adequately assess project alternatives (such as renewable energy) and a no-go option.

Response 4:

GIBB confirms that it is a legal requirement in terms of the National Environmental Management Act to assess feasible alternatives, which is defined to mean *different means of meeting the general purpose and requirements of the activity* – in the case of this EIA, the activity is the construction and operation of a nuclear power station to provide base load electricity generation at either the Duynefontein, Bantamsklip or Thyspunt sites. As such Chapters 5, 9 and 10 of the Revised Draft EIR Version 1 discusses alternatives, which include:

- Location of the power station;
- Nuclear plant types;
- Layout of the nuclear plant;
- Fresh water supply and utilisation of abstracted groundwater;
- Management of brine;
- Intake of sea water;
- Outlet of water and chemical effluent;
- Management of spoil material;
- Access to the proposed sites; and
- The no-development alternative.

The choice of technologies, described in Chapter 5 of the Revised Draft EIR Version 1 and the implications of alternative technologies such as wind generation to address South Africa's energy requirements is provided for information but does not fall within the ambit of this Environmental Impact Assessment (EIA). It falls within the ambit of strategic government initiatives such as the Integrated Resources Plan 2010. The IRP was subject to an extensive public participation process. Carrying out such a debate during the EIA process would be duplication.

This EIA and Application for Environmental Authorisation is not a strategic assessment of South Africa's energy requirements and the future energy mix proposed to address these requirements or an

investigation into the pros and cons of the use of nuclear power versus renewable / alternative energy. It is a tool used to assess the possible positive or negative impact that the proposed project may have on a specific receiving environment, which in this case are the Duynefontein, Bantamsklip and Thyspunt sites.

Comment 5:

Fifth, there is no final project design, making any assessment of the actual impacts impossible.

Response 5:

Your comment is noted. We assume that you are referring to design detail in terms of the reactor type/manufacturer to be used as you have not defined the lack of design detail in your statement above.

It is common practice in EIA processes, especially for installation of industrial plants, to consider the performance of the systems and type of technology proposed to be installed, without referring to specific suppliers or manufacturers of this technology, of which there may be a range available in the market. As long as the inputs and outputs of the proposed technology are known and the environmental impacts can be predicted or deduced from these inputs and outputs with reasonable certainty, it is not necessary to know the brand name of the technology and makes the assessment of impacts very possible.

As has been done in other issues and response reports, it may be appropriate to explain the envelope of criteria in colloquial terms, as has been done in public meetings during the Nuclear-1 EIA process. If the envelope of criteria is compared to the specifications for buying a vehicle, this envelope may contain requirements with respect to top speed, fuel type, fuel efficiency, catalytic convertor performance, type of tyres and wheels, fuel tank size, effective range, CO_2 emission limits, cruise control, numbers and positions of airbags and a number of other safety systems such as ABS and EBD. The only thing that isn't specified is the brand of vehicle. Providing such a list of criteria would ensure that only a luxury vehicle with certain characteristics could qualify, but that a base model (entry-level vehicle) would not qualify. Similarly, if a vendor proposes a power station design that fails to comply with the criteria established in the Consistent Dataset, that design will not qualify for consideration.

Assuming that an authorisation is granted by the DEA, a power station design that deviates significantly from that specified in the Consistent Dataset in the Nuclear-1 EIR (Appendix C of the Revised Draft EIR) would render the design incapable of meeting the requirements of the EIR and the authorisation. Hence such a non-confirming design could not be considered for construction.

Comment 6:

In light of these concerns, I suggest that these revisions be added to the report so that decision-makers have all the relevant information to make their decision.

Response 6:

Your comments have been noted and revision to the report will be made only where deemed necessary. Your comments will however be added to the Revised Draft EIR Version 2 and Final EIR which will be placed before the Competent Authority for decision making.

Yours faithfully
for GIBB (Pty) Ltd

The Nuclear-1 EIA Team