

Our Ref: J27035

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Attention: Dr. Peter Inman

Johannesburg

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Dear Sir

ESKOM ENVIRONMENTAL IMPACT ASSESSMENT (EIA:12/12/20/944) FOR A PROPOSED NUCLEAR POWER STATION AND ASSOCIATED INFRASTRUCTURE: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Your correspondence to Ms. Bongzi Shinga of Acer (Africa) entitled "Comment on the Nuclear-1 Draft EIR" refers.

Arcus GIBB acknowledges receipt of the above-mentioned letter. We thank you for your valuable comments and your participation in the Eskom Nuclear Power Station (NPS) Environmental Impact Assessment (EIA) process to date. Your questions and comments concerning the Nuclear-1 have been noted.

Responses to your comments / questions are as follows:

Your comment (1) – Page 2

1. Additional base-load plus DSM plus energy efficiency plus renewables is a sensible approach; how else could you approach the RSA energy crisis and global warming?
2. Projection of 4% per annum growth over the next 20 years is not unrealistic and this equals 20,000MW of new build of which nuclear could be half to improve the country's carbon footprint. This does not address the taking out of service of old/inefficient stations.
3. Nuclear-1 should be 4,000MW with definite consideration of further expansion as economies of scale are a significant factor. The new build nuclear must be a "mass production" exercise and not the almost one-off approach of the first generation (the Rolls-Royce approach), which was particularly prevalent in the UK in contrast to the standardized approach of France.
4. Comment is made that Northern Cape sites are problematic as power cannot easily be transmitted up-country. A key enabler at Coega is the new Dedisa sub-station capable of transmitting up to 5,000MW of power and with the network already reinforced through Beta-Delphi and future reinforcement through Harding from KZN and the 765kV backbone. Remember that the original CCGT Power Station was going to be 2,400MW, we have now postulated 3,200MW, and that fact was taken into account by Eskom when Dedisa and the network up-upgrades were designed.

Response (1)

Your comments on points 1 – 4 above is noted. In terms of point 4 above please note that, as per Chapter 5 of the Draft Environmental Impact Assessment Report (Draft EIR) the sites in the Northern Cape were excluded from further consideration as a result of:

- Optimal, strategic and cost effective utilisation of existing infrastructure associated with the Duynefontein, Bantamsklip and Thyspunt sites, with respect to the local integration

- and exportation of power via existing power corridors;
- Lengthy time delays associated with the authorisation and construction of the new power corridors applicable to the Northern Cape sites, which will prevent Eskom from providing power within the required timeframes;
- Unnecessary environmental impacts associated with the construction of new power corridors given that there is existing infrastructure at the other three potential sites; and
- Cost implications associated with the development of new power corridors at the present time.

Your comment (2) –page 3

1. A phased implementation approach with Nuclear-2 soon after Nuclear-1 is very sensible and allows proper planning by suppliers, service providers and contractors, otherwise it is a last minute rush and local companies are disadvantaged as happened with the coal new build.
2. A co-operative governance approach by DEA and NNR is good and allows some of the processes to be done in parallel rather than sequentially.
3. Radiological issues are for DEA's information. This doesn't read very well; "have been included only for information purposes" maybe.
4. Generation III PWR's are the logical choice and 31 hectares for 4,000MW is not excessive. Pragmatic approach of considering up to 10,000MW at same site is sensible as it keeps options open. 800m exclusion zone plus an additional area is again sensible.

Response (2)

Your comments on points 1 – 2 above is noted.

3. The statement that the Site Safety Reports are included in the EIR for information purposes is based on the content of the Department of Environment Affairs (DEA) / National Nuclear Regulator (NNR) Memorandum of Understanding, as well as the Plan of Study for EIA, which has been approved by the DEA.

4. It has been confirmed that 31 ha is not the size of the area that will be affected. According to the Eskom Position Paper (2010) in this regard (included in the Revised Draft EIR), between 200 and 280 ha will be required for the proposed power station. The area that will be required will depend primarily on the topography of the site and the positioning of the power station on the site. The footprint of the power station is still, in most cases, less than 10% of the size of the properties, which confirms that the potential conservation to the remainder of the properties (especially at Thyspunt and Bantamsklip, which currently do not have the same conservation status as Duynfontein) would continue to be significant. The Eskom properties will, in the case of all three alternative sites, include the 800 m safety exclusion zone. Furthermore, Eskom intends to purchase all land within a 2 km radius of the power station. This is not based on legal requirements, but is an Eskom preference, as such ownership makes it more convenient to control development around the proposed power station.

Your comment (3) – page 4

1. Start in 2011 and commission in 2018 (first unit) is somewhat optimistic but keep driving the process.

Response (3)

Your comment is noted. The anticipated timeframes for the proposed developed are indicated in Table 3-1 of Chapter 3 of the Draft EIR. The commencement of site activities will be initiated if and when Eskom obtains all the relevant authorisations. This EIA forms part of the application in terms of the NEMA. In addition, Eskom requires authorisation from the NNR in terms of the NNR Act.

Your Comment (4) - page 5

1. You can't have three alternative sites; alternate means one or the other. Three proposed sites is better. Duynfontein is the default site as it is near Koeberg and we want hard decisions to be made and not soft options taken.
2. Where do EPZ's come from? In my book, they are "Export Processing Zones".
3. Seismic risk is a key consideration; there is no such thing as aseismic. Someone tried to argue for an aseismic characteristic in the Middle East when the North Dome Field was being considered for development in Qatar. Thyspunt has the lowest horizontal acceleration factor (0.16g) as things stand.

Response (4)

1. The proposed sites are site alternatives to one another and have been assessed as such. This application is therefore progressing as per the original application for authorisation of a single site. As previously if one site is found to be preferred in terms of Nuclear-1 the other sites may still be considered for Nuclear – 2 etc.
2. EPZ is the abbreviation for Emergency Planning Zones.
3. Your comment is noted.

Your Comment (5) - Page 6

1. Conveyor belts for moving sand instead of trucks is sensible.

Response (5)

Your comment is noted.

Your Comment (6) - Page 7

1. From personal experience, I know Thyspunt is special and an innovative approach to disturbance of flora will be required. Consolidate with harmless gel and move large sections?
2. Wetlands at Thyspunt are significant. Will ponding areas in dunes behind main Rebels Rust properties be disturbed?

Response (6)

1. The disturbance of flora at the Thyspunt site was investigated by the Floral Assessment attached as Appendix E11 to the Draft EIR. The specialist has proposed mitigation measures which has been incorporated into the Draft EIR (Chapter 9 and 10) and Draft Environmental Management Plan.
2. These areas are unlikely to be disturbed as the road lay-out has been designed in such a way as to minimize the impact on these areas.

Your Comment (7) - Page 8

1. Although it's counter-intuitive, a nuclear site has a large surrounding area of land with formal protected status which will give substantial benefits for conservation. Compare the old Eastern Europe situation with great swathes of old forest protected until the fall of Communism because they were set aside for the elite to indulge their passion for hunting.
2. Couldn't the thermal plume be diverted initially for mariculture purposes which will also allow it to cool down further? I suppose the land/sea area for such a facility would be a major impact in it's own right.
3. The discussion of the micro-economic impacts seems to draw the wrong conclusions. Surely, the positive impacts would be greater in a poorer province than a better off province? Hence, Thyspunt in the Eastern Cape would be a better choice than the two sites in the Western Cape, or am I missing something?

Response (7)

1. Your comment is noted. Eskom will conserve those areas around the power station and road access for nature conservation. The Koeberg plant is an example of this initiative from Eskom.
2. Using the plume for mariculture purposes has not been considered in terms of the current Environmental Impact Assessment.
3. We note your comment regarding micro-economic impacts at Thyspunt vs. the two sites in the Western Cape. However, each site was investigated with a thorough desktop study followed by field visits. Various prominent tourism stakeholders and authorities were identified, contacted and interviewed. The tourism asset at each area was then described according to specialist observation and the perceptions of the consulted stakeholders. In terms of economic impact, the findings with regards to the Eastern Cape vs. Western Cape sites were mixed. With respect to macro-economic impacts, it was found that there would be a greater positive impact in the Western Cape, as the more established and larger economy in this province would be better able to serve the needs for the construction and operation of the proposed power station. However, with respect to micro-economic impacts, it was concluded that the Eastern Cape economy would derive greater benefit from the construction and operation of a proposed power station.

Your Comment (8) - Page 9

1. The social impacts, identified as generally negative during the construction phase, can be mitigated by adopting the CDC's approach (HCS, LBMS, etc.). Greatest positive impact is country wide with future guarantee of sufficient power for both the industrial and residential sectors as those who do not have access to electricity now are connected and as the general living standard of the country rises so that the inequalities of the past are eliminated. Those of us who are lucky to have all our energy needs met and who can afford such a lifestyle cannot deny those opportunities to all of our fellow countrymen in the future. This is about the future and not the privileges of the past.
2. It is the wrong way to express things to say "possible skills development during construction". We must go the CSDP route and the CDC can lead with their expertise and the new SDC and training initiatives. This must be a positive and not a negative. Of the two provinces, the Eastern Cape is the more deserving from a developmental perspective.
3. Perceived as distinct from actual risk is absolutely key in the nuclear debate. People deal with risks in a very idiosyncratic way and that just has to be factored in. Most people still equate

nuclear power with Hiroshima and Nagasaki and Three Mile Island and Chernobyl, probably forgetting Windscale. Many more people have died in coal mines from rock falls or from developing black lung and then there is the pollution from the old power stations and the CO2 emissions; coal is far more dangerous.

4. Rather than emphasizing the negative, focus on the positive. There can be iconic major structures; think Eiffel Tower, Battersea Power Station, etc. Use the masses of the major elements to make a big and bold “engineering sculpture”. We want tourists to come and see the 22nd century here and now in South Africa.

Response (8)

Your comments on points 1 – 4 above is noted and your recommendations will be taken into consideration.

Your Comment (9) - Page 10

1. Agriculture is a positive spin off at Thyspunt and complements the existing agricultural focus of the Humansdorp area.
2. As noted in 4) above, turn the new power station into a positive attraction for the area. Juxtaposed there will be the iconic “engineering sculpture” and a world leading eco-reserve in the surrounding area. Contrast the Strandloper lifestyle with 22nd century man in the information centre which will become a must for those travelling the Garden Route.

Response (9)

Your comments on points 1 – 2 above is noted and your recommendations will be taken into consideration.

Your Comment (10) - Page 11

1. Everyone focuses on the power station but the transmission integration factors are equally important. The Thyspunt site has the advantages as noted under Page 2 comment 4.
2. The reduced carbon footprint for nuclear power has to be part of the equation with global warming a reality.
3. English “conservation of the site remainder”.

Response (10)

Your comments on points 1 – 3 above is noted.

1. Transmission integration factors is discussed in Chapter 10 of the Draft EIR.
2. Your comment is noted.
3. Your comment will be passed to the author of the Draft EIR for consideration.

Your comment (11) - Page 12

1. For base load in South Africa, it is coal versus nuclear; renewables are not base load but can contribute to the energy mix.

2. The technical need for coastal power generation has not been argued but it is an imperative for a number of reasons including the need to “anchor” the long transmission lines to obviate network instability risks. The “centralized” power generation approach is a legacy of the old dispensation so why are we clinging to it?
3. Diversification of primary energy sources is a government policy, as is a reduced carbon footprint, and for good reason.

Response (11)

Your comments on points 1 – 3 above is noted.

Your Comment (12) - Page 13

1. Nuclear-1 requires 31 hectares but the total available site is 74-172 hectares so it makes sense to maximize site utilisation and build more stations on the same site, provided the power can be efficiently evacuated.
2. There must be a practical use for abstracted groundwater; can't the municipality and/or the private sector assist?
3. Desalination of sea water to provide potable water is the only sensible option.

Response (12)

Your comments on points 1 – 3 above is noted. As indicated in Response 4 above, the footprint of the power station will be in the order of 200 ha to 280 ha, depending on the positioning of the power station. From an efficiency point of view, in theory it does make sense to maximise site utilisation by constructing more than one power station per site. It is for this reason that Eskom has requested GIBB to investigate the potential for 10000 MW of generation per site, although the current application is for a maximum of 4000 MW only. Please refer to the site sensitivity maps in the Revised Draft EIR, as these indicate what are regarded as areas suitable, from an environmental point of view, for the positioning of the proposed power station.

2. Your comment regarding the use of groundwater is noted. However the logistics of providing the municipality with the water, for instance, might lead too additional impacts related to construction of infrastructure such as pipelines etc. These impacts have not been assessed, as they fall outside the scope of this EIA application. Should such a scheme be considered, its impacts would need to be assessed in a separate EIA process.

Your Comment 13 - Page 14

1. Knowing the area quite well, access to the site from the west (Oyster bay) is practical and sensible.
2. The amount of high level waste from the Generation III PWR's is much less than is the case with the old designs. So, storage of the high level waste on site, until a safe and secure disposal method can be implemented, is practical and sensible.
3. Again, there are only two feasible base load options, coal and nuclear and coal in the most damaging in the long term.
4. Accommodation for construction workers should be a positive and not a negative if the CDC's approach is adopted. The project would add to the housing stock of the area.

Response (13)

Your comments on points 1 – 4 above is noted

Your Comment 14 - Page 15

1. EMP has been prepared in advance so concerns can be addressed now and not when the work starts.

Response (14)

Your comment is noted. The EMP has subsequently been revised to be more site specific.

Should you have any queries with respect to the above please do not hesitate to contact Arcus GIBB.

Yours faithfully
For Arcus GIBB (Pty) Ltd

A handwritten signature in black ink that reads "Jm Ball". The signature is written in a cursive, flowing style.

Jaana-Maria Ball
Nuclear-1 EIA Manager