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Hermanus Ratepayers
PO Box 134
HERMANUS
7200

Email: ratepayers@hermanus.co.za

Cape Town

14 Kloof Street
Cape Town 8001
PO Box 3965
Cape Town 8000

Tel: +27 21 469 9100
Fax: +27 21 424 5571
Web: www.gibb.co.za

Dear Rodney Anderson

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

Comment 1:

SUBMISSIONS ON THE REVISED DRAFT ENVIRONMENTAL IMPACT ASSESSMENT “DEIAR” FOR THE PROPOSED POWER STATION (NUCLEAR-1): COMPILED BY: RODNEY ANDERSON ON BEHALF OF THE HERMANUS RATEPAYERS’ ASSOCIATION (“HRA”) EXCO

1. The following comments are based on a mandate granted unanimously by the members of the HRA at their Annual General Meeting on 24 March 2010.
2. In addition, the HRA reiterates its reliance on the submissions it made to the DEIAR, dated 27 June 2010. Though a response was prepared by Arcus Gibb (“the Response”), it fails to properly address the relevant issues. We say so for the following reasons:

Tourism

- 2.1 Tourism is the only long-term industry underpinning the value of the Overstrand. The Tourism Assessment correctly acknowledges the importance of tourism to the region. The Response correctly acknowledges that the tourism market in this area is still developing. The potential for its growth is exponential, provided that its pristine natural assets are preserved. The HRA stands by what is set out in relation to the importance of tourism as the basic economic-driver of the region. The HRA is aware that numerous submissions have been sent to Arcus Gibb highlighting the inestimable environmental value of the area. The HRA allies itself, in particular, with the submissions made by Sue Leber and Storm Kreuzsch (both of whom are experienced in the tourism industry) in relation to the Nuclear 1 DEIA. Research and experience in this industry reveal the Tourism Impact Assessment to be incorrect and misleading. For instance, the Tourism Bureau’s information is inaccurate and incomplete – it cannot be accepted as a reliable source of tourism information.
- 2.2 Though whale-watching and shark-cage diving are important, there are numerous terrestrial recreational activities that attract tourists. In this regard, Overstrand has been registered by Birdlife International as an important birding area – it is one of the very few municipal areas in

the world to have achieved this distinction. Avian and botanical tourism are massive international industries and will continue to grow.

- 2.2 A nuclear power station (“NPS”) will only have a negative effect on such growth. The implication that visitors would come to an area such as Bantamsklip – renowned for its natural beauty – for the purpose of visiting a NPS is, at best, unlikely. In this regard, the HRA calls upon Arcus Gibb to make available a quantifiable impact assessment with visitation numbers supporting this argument.
- 2.3 The 20 kilometre radius used to evaluate tourism value and size is arbitrary and completely inappropriate for this purpose. In order to make an accurate and fair assessment of the tourism value of the region, it is necessary to consider settlements within a wider radius, so that important tourism and commercial entities are taken into account. 50 kilometres is a more logical and reasonable radius to consider this type of activity. The exclusion zones used in the EIA are also completely inappropriate and unsupported by international evidence or experience. We elaborate on this below.

Response 1:

Your comments are noted.

Your comment regarding inaccuracy of tourism figures obtained from the Tourism Bureau refers. The Tourism Impact Assessment (Appendix E22 of the Revised Draft EIR Version 1) acknowledges the poor quality of tourism data and the makes a point about the disparate and haphazard nature of the data that are available. Tourism statistics were therefore obtained from a number of sources, including Stats SA Western Cape Tourism, Cape Town Routes Unlimited, etc. as complete data sets were not available from a single source. All stakeholders with whom the Nuclear-1 tourism specialist consulted were unified in their admission that tourism statistics are insufficient and indicated that quantifiable data for specific geographic areas such as those for the Nuclear-1 project are lacking. This is acknowledged as a limitation in the Tourism Impact Assessment.

Your comments regarding visitation to a nuclear power station is noted. Koeberg Nature Reserve around Koeberg Nuclear Power Station (KNPS) provides an example of a nature conservation asset that is frequently visited by tourists approximately (15 000 per year).

Apart from the direct benefits that Koeberg Nature Reserve provides for recreation and tourism, the operation of the KNPS provides opportunity for numerous accommodation establishments, which host business tourists who come to the KNPS for work. A similar nature conservation initiative around a power station in which Eskom is involved is the establishment of a large conservation area around Ingula Pumped Storage Scheme. This area contains a wetland of very high conservation value for water birds, which will provide an important asset for bird-related tourism once it is fully developed. Birdlife SA has declared the upper Bedford wetlands in this conservation area as an Important Bird Area (www.birdlife.org.za/conservation/iba - accessed on 29 November 2012).

Your comments regarding the size of the area considered are noted. The “exclusion zones” for the power station are completely unrelated to the size of the area selected for impacts assessment. GIBB did not specify a particular radius for specialists to consider, but left it up to the judgement of the particular specialist to define their area of study.

Comment 2:

Design of reactor

2.4 The HRA notes that the Response does not address its concerns (and those of countless other organisations) regarding the fact that the type, specification and number of reactors have not been determined. The HRA reiterates these concerns, which are also identified in other submissions set out above. This is a fatal flaw – without the choice of design (which has an integral impact on numerous other issues) – it is simply not possible to properly assess all of the impacts of the NPS.

Response 2:

Your comment is noted. GIBB maintains that an acceptably accurate assessment of the potential environmental impacts is possible with the use of the “Consistent Dataset” (Appendix C of the Revised Draft EIR Version 1).

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, and other specifications like footprint and processes/functionality, of the proposed technology are known and the environmental impacts can be predicted or deduced from these data with reasonable certainty, it is not necessary to know the brand name of the technology.

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, CO₂ 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 is not 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.

Comment 3:

Transmission lines

2.5 Any difficulties that may have been experienced in having to consider the impacts of the transmission corridors in the DEIA are irrelevant – considering this issue is a crucial component and inseparable from this EIA process. This is also a fatal flaw and legally impermissible.

2.6 In any event, there *is* no feasible route for these lines in relation to the Bantamsklip site – it will therefore not assist to defer this determination to a separate EIA process.

2.7 Significantly, at a public participation meeting in Bredasdorp, when this issue was raised by a member of the public, Arcus Gibb responded that the public should suggest a suitable route for

the transmission lines to Bantamsklip. This highlights the extent of the difficulty that had been experienced in this regard, before the process was stalled and deferred to another EIA process.

Response 3:

Your comments are noted.

The impacts associated with the transmission lines have been considered as far as possible during this EIA process. Whilst it might be ideal to consider the potential impacts of the power station and all three transmission corridors in a single document, this is not practically possible and would result in an unmanageable process and in all likelihood a set of documentation that would make understanding of the key issues impossible. At this stage the EIR for the power station includes 35 different specialist studies and is a very lengthy documentation. This amount of information is already difficult to manage and digest by the public and quadrupling the volume of this documentation by including all three power line corridors (most of which include a number of different corridors in widely dispersed areas) is not practical. It is in recognition of these facts that the DEA has approved the approach of one EIA process for the nuclear power station site and three separate EIA processes for the transmission lines.

The difficulty in finding a feasible route for the Bantamsklip transmission lines is acknowledged. This is one of the reasons why the Bantamsklip site was recommended as the least suitable of the three alternative sites in the Revised Draft EIR.

Comment 4:

Release of radioactive substances

- 2.8 The HRA reiterates its submissions and relies also on the other submissions set out below, including those submissions that question the independence and reliability of the NNR.
- 2.9 One of the major concerns of the HRA and other organisations is that the whole life cycle of the NPS is not considered. Especially given the lack of a plan in relation to long-term waste, and its effect on future generations, this is also a fatal flaw.
- 2.10 Whilst it may be so that it is not practical to address “more than 30 different other authorisations that need to be obtained”, there is no doubt that issues of radiological safety fall squarely within the ambit of an EIA process. It is unacceptable and legally impermissible for this responsibility to have been deferred to the NNR.

Response 4:

Your comment on the independence and reliability of the NNR is noted. GIBB, as the environmental assessment practitioner, has no mandate to question the independence and competence of a regulatory body.

Your comment regarding the life cycle impacts of the power station are noted. Environmental Impact Assessment (EIA), by its very nature, is a project-specific tool of environmental management dealing with the impacts of construction and operation, among others, of a particular facility. As such, an EIA is not focused on assessing the impacts of the entire life cycle of a project proposal. It is therefore not possible within the scope of the Nuclear-1 EIA to consider all the life cycle impacts of a nuclear power station, or of alternative electricity generation technologies.

Your comment regarding the exclusion of certain radiological matters from the EIA refers. Our previous response remains valid.

Comment 5:

Renewables and costs

- 2.11 Installing renewables has been shown to be both cheaper and faster than NPSs; particularly when the life cycle of renewables is compared to the whole life cycle of NPSs. In addition, it is not true that “base-load” power cannot be achieved without nuclear or coal - alternatives to base-load coal or nuclear power can be provided by efficient energy use, solar hot water, bio energy, large-scale wind power, solar thermal electricity with thermal storage, and geothermal, with gas power playing a transitional role. In particular, large-scale wind power from geographically distributed sites is partially reliable and can be made more so by installing a little additional low-cost peak-load back-up from gas/diesel turbines. Renewable energy will certainly make a much bigger impact than nuclear power in reducing greenhouse gas emissions. It also creates more jobs, and unlike nuclear power, these can be broadcast wherever the power is required.
- 2.12 Design parameters for all future power plants are currently being reconsidered in the light of the Fukushima disaster. This will escalate the already enormous costs, delays, and difficulties associated with the building of NPSs worldwide. Many countries have now decided to abandon and/or phase out nuclear power. Nuclear power has also become politically unpopular in first-world countries. For all of these reasons, a NPS would have a negative impact on much-needed external independent capital investment in South Africa.

Response 5:

Your comments in favour of renewable energy are noted and shared. The value of renewable energy sources is not contested and they have a vital and increasingly important role to play in energy supply in South Africa. However, the legislated EIA process for Nuclear-1 does not intend to, nor is it equipped to assess the merits in principle of nuclear generation vs. other forms of generation.

The environmental application for Nuclear-1 is for a nuclear power station, as has been the case with other power stations such as the gas-fired power stations that have been constructed at Mossel Bay and Atlantis and the Medupi and Kusile coal fired power stations currently under construction. In all these previous instances, the scope of the EIA was restricted to a specific power station on a specific site or sites within a defined geographical area. Execution of the EIA process towards a technology is fed from the strategic planning processes. Thus, it cannot reasonably be expected that each application for a power station must revisit strategic government decisions that have been taken on the mix of generation technologies that are necessary to meet South Africa’s electricity needs. This is especially the case in the instance of the Nuclear-1 application, where the government has, through a consultative process, already taken a decision on the mix of generation technologies required to supply South Africa’s future electricity needs for the next two decades.

Please refer to Appendix E33 for the Beyond Design Accident Report for further details on the Fukushima incident. The report also elaborates on the design specifications that Nuclear-1 has in place to avoid similar situation.

There are some countries such as Japan and Germany that have put on hold plans for future nuclear power station development. However, there are others such as China that are currently constructing

several nuclear power stations and planning several future ones. Therefore each countries decision and plans on Nuclear energy must be seen within the context of that country and not generalised.

Comment 6:

Exclusion zones

- 2.13 The emergency zones of 800 metres and 3 kilometres are wholly inappropriate and inadequate. They are not supported by international evidence or experience. The impacts of nuclear accidents have been shown to extend very much further than those proposed. The Greenpeace submission of August 2011 addresses this in some detail.
- 2.14 In the light of the Fukushima disaster, the world is reassessing the nuclear risks and impacts of nuclear accidents, as the Fukushima disaster casts serious doubts on current nuclear safety levels. Therefore, all nuclear expansion plans, including this EIA process, should be put on hold awaiting the outcomes of the industry's reassessment. As a basic minimum, the Revised DEIR should be adapted to incorporate lessons learned from Fukushima.

Response 6:

The 800 m and 3 km are as per the EUR standards. Please refer to Chapter 3 of the RDEIR Version 2, for further information.

Your comments on the lessons learnt from Fukushima are noted. Please refer to Appendix E33 of the RDEIR Version 2 for information on Fukushima and the design measures put in place for Nuclear-1. Furthermore the NNR had re-assessed Koeberg's emergency plan and determined that they were adequate in light of Fukushima.

Comment 07:**COMMENT ON EIA****RE: ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED POWER STATION (NUCLEAR-1): COMMENTS RELATING TO BANTAMSKLIP.**

Compiled by: Rodney Anderson on behalf of the HRA Exco.

The following comments are based on a mandate granted unanimously by the members of the Hermanus Ratepayers Association at their Annual General Meeting on the 24 March 2010. Our comments, therefore, will be largely based on but not limited to our concerns with regard to eco-tourism, agricultural production, marine harvesting and environmental conservation.

The Overberg District Municipality, encompassing the L'Agulhas and Overstrand regions, is of major importance to tourism in the Western Cape. It thus forms part and parcel of the wider attractions of the Wine Routes, the Garden Route and South Africa as a tourist destination as a whole. The natural assets of the Overstrand-Agulhas region are its single biggest tourism and eco-tourist draw-card and are responsible for sustaining the economy and for generating and sustaining employment.

In the Tourism speech for the department of economic development and Tourism's budget vote speech 2008/2009, delivered by Ms Lynne Brown, Provincial Minister of Finance and Tourism, Western Cape Legislature, 28 May 2008 <http://www.whalecoast.info/news.php?section=view&id=10> She said: "I would like to briefly reflect on NEW research commissioned by Cape Town Routes Unlimited (CTRU) which was completed by the Cape Peninsula University of Technology.

- *The research findings show that the tourism sector of the Western Cape contributed 14.08% to the Gross Geographic Product (GPP) to the Province in 2005.*
- *AND in fact that 29 tourists are required to create one direct job in the industry while 20 tourists create one indirect job.*
- *That the Demand generated by tourism in other sectors is valued at:*
- *R2.5-billion for Manufacturing;*
- *R2-billion for Transport, Storage & Communication; and*
- *R1.5-billion for Wholesale/Retail Trade, Hotel & Restaurant.*
- *That the total impact of Travel and Tourism consumption (this means travel and tourism industry supply) on the Western Cape economy in 2005 was R 25.2-billion. It can only be concluded that the true impact of tourism extend far beyond the core of the tourism industry and that the current tourism statistics understate the real contribution of tourism to the Western Cape economy."*

The above informative speech dramatically defines the scope and connectedness of potential areas impacted by the ripple effect of the disruption of tourism attraction and should give pause for thought.

Rapport, announced South Africa's Whale Capital Hermanus as its Town of the Year (2009) in an SMS competition. Routes Unlimited, the tourism destination marketing organisation for Cape Town and the Western Cape supports this competition. A previous winner was Struisbaai in 2007.

"Hermanus is one of the towns which epitomises the Western Cape tourism experience. It has that one defining, unforgettable feature - the best land-based whale watching spot in the world – while at the same time offering the visitor a distinct mix of tourism options such as glorious beaches, its Hemel-en-Aarde wine route, adventure sport, and restaurant and accommodation choices to suit

every taste and pocket. Winning this title will definitely assist the town even further in growing into a top-of-mind domestic tourism destination,” says Calvyn Gilfellan, Chief Executive of Cape Town Routes Unlimited.

Response 07:

Your comment on the value of the tourism industry is noted.

Comment 08:

Extract from the Executive summary of the Draft Environmental Impact Report

1. *Perceptions regarding a nuclear power station are frequently based on lack of scientific information about perceived impacts*
2. *Public concern is also relatively low at Bantamsklip*
3. *In general the business sector around all three sites see opportunities arising from the establishment of a nuclear power station, quite apart from the importance of stabilising the electricity supply*
4. *The two most sensitive industries in terms of their perceptions about the impacts of Nuclear 1 on their activities are fishing and tourism. However the analysis shows that any negative impacts are likely to be slight and that in fact there would be overall positive impacts on tourism.*

Ignoring, for the moment the blatant bias implicit in the wording of the above remarks, we declare that these statements are only made possible by scoping out the economic powerhouse of Hermanus with a population over 100 000 (speech by Mayor Theo Byleveldt Overstrand Municipality, IDP meeting, 2010).

Response 08:

Your comment is noted. The extracts above are from the economic impact assessment and therefore need to be answered in the context in which these statements were made. The approach of the Economic Impact Assessment (Appendix E17 of the Revised Draft EIR Version 1) was to assess the impact on the regional and provincial economies. Bearing this approach in mind, there are no specific areas such as Hermanus that were scoped out of the study.

Comment 09:

Hermanus is the eco-tourism centre of the Overberg District Municipality. Although this important resort town lies within the 50km radius designated internationally as an emergency-evacuation zone in the case of a nuclear accident, it is nevertheless presumed in the Draft Environmental Impact Report to lie beyond the biophysical, social, and economic impact zone. This is both illogical and nonsensical in the extreme. This viewpoint holds good for Stanford, Gaansbaai (sic), Stuisbaai (sic), and all the many smaller towns within the 50 km radius.

Such businesses that are included in the artificially and illogically truncated ‘impact zones’, moreover, would tend to count short term improvements during construction and would therefore think more in terms of these short-term gains rather than the overall, and negative, long term regional economic impacts. The specialist studies are silent on this.

In the event that the overall long-term impacts on eco-tourism and other tourism and all other local terrestrial and marine commercial activities were properly researched using the whole life-cycle of the proposed nuclear power station at Bantamsklip, a completely different picture would undoubtedly emerge.

Response 09:

Your comment is noted.

The radius of the affected environment assessed by each specialist study was independently determined by each specialist. Whilst you may argue that a 50 km radius is not sufficient, other commentators may argue that 100 km or 200 km is not large enough. Ultimately, however, an objectively determined zone, which is the same for each alternative site (to allow for comparison) needs to be defined. In this instance, the relevant specialists regarded 50 km as appropriate.

Comment 10:**Assessment of impacts on tourism**

With reference to the Tourism Specialist Study, bed nights are a ludicrously inadequate tool to account for the overall income from tourism, while the sum of R340 per bed-night is grossly understated. This basis also implies that all visitors to the Overberg visit for the sole purpose of sleeping and fasting, which is obviously also nonsense.

The choice of two of the “most sensitive” industries given as “fishing and tourism”, while excluding all other agriculture, viticulture, indigenous plant products, aquaculture and commerce generally in the broader context, ignores their inter-relatedness. Even the real estate and construction industries are glossed over, when we avoid scoping out the heart of the Overberg by limiting the impact zone to 20 km for a huge nuclear-industrial complex with a lifespan stated as lasting 60 years.

Response 10:

Your comments are noted. Bed nights are the only recognised objective criterion for measuring tourism impacts.

It is assumed that your statement regarding the focus on the most sensitive industries, namely fishing and tourism, relates to the Economic Impact Assessment (Appendix E17 of the Revised Draft EIR). The statement is made specifically regarding perceptions, since the fishing and tourism sectors are the ones that have expressed the greatest concern about Nuclear-1. Few if any comments have been received from other sectors such as agriculture, viticulture, aquaculture and commerce. A specific statement has therefore been made about the potential impact on those sectors that expressed the greatest concern.

Comment 11:

To then make the claim – “*that in fact there would be overall positive impacts on tourism*” – beggars belief

In the almost total absence of current well researched, reliable and focused data on the commercial value of Tourism in the Overstrand-L’Agulhas region it is impossible to make accurate statements as to the value of this primary economic driver.

Here is one example of the differing opinions of the value of shark-cage and whale-watching tourism industries between the Gibb’s specialists and a conservation group:

Tourism Impact Assessment Study: Table 4.4 Approximate Annual Value of Shark-cage and whale-watching tourism industries in the Greater Gansbaai area.

Approximate value of shark and whale tourism industry per annum

R 56,400.000

Weekend Argus Saturday 1 May 2010 Helen Bamford

*Lesley Rochat, director of the AfriOceans Conservation Alliance said that:
Great white shark cage diving in Gansbaai alone generates per annum*

R289, 000,000

Tourism Impact Assessment Study: 4.1 Assessment of Impacts on Tourism

“For all three sites there are no “no-go” areas and no preferred siting of the facility from a tourism point of view”

This statement is certain proof of bias and or incompetence.

Response 11:

Your comment is noted. Each specialist was required to identify, from a spatial point of view, whether there are any sensitive areas on the alternative sites from their perspective i.e. to determine whether there are areas on the site where the power station and associated infrastructure should not be placed. The statement in the tourism impact assessment is made in this context, as there are no tourism assets on any of the three alternative sites that would be affected by the proposed power station.

The difference in the estimates of the economic value of the shark cage diving industry is noted. For these estimates to be directly compared, the assumptions, inclusions and exclusions of the respective studies would have to be examined. One source may, for instance, only have considered the direct income of shark cage diving operators, whilst another may also have included the indirect value of accommodation. With the information you have provided above, it cannot be confirmed whether the data are directly comparable.

Comment 12:

The insertion of a vast nuclear facility into a pristine ecological terrestrial and marine biodiversity “hot spot” of international importance makes no sense from any logical point of view.

With regard to the socio-economic impact on the Overberg District Municipality, and the Overstrand-L’Agulhas region in particular, the magnitude of impact that such a nuclear industrial complex might impose on the region is downplayed, given that up to three or four reactors might be required to produce the planned 4 000 MW output required from each of the three sites.

The consistent success of tourism/eco-tourism and the overall growth of the whole of the Overstrand economy have remained dependent on, and inseparable from, the broader terrestrial and marine ecology and bio-diversity of the region.

This is why logically the concept of any major industrial development which disrupts the natural fabric of the Overstrand-L’Agulhas region is of deep concern to the Hermanus Ratepayers and all persons in the Overstrand economy.

Eco-tourism has been identified in the Integrated Development Plan of the Overstrand Municipal Authority as the mainstay of the economic and social development strategy for the area with growth calculated at over 6 percent per annum over the last 10 years (Long term traffic counts R43). A wide range of tourism-based recreational activities and facilities have been developed over the last decades and these multi-million rand investments have served to drive the economy, which in turn, have in turn led to rapid wealth and job-creation.

Tourism Impact Assessment Study: 4.5 Assessment

The claim that there has been “*rapid growth of the tourism sector in the area near Koeberg...a similar state of affairs should obtain around Bantamsklip*” is not based on any cohesive scientific basis at all.

Response 12:

Your comments are noted.

The number of reactors is immaterial to the scale of the impact. The application for Nuclear-1 is for a total power generation capacity of up to 4,000 MW. This could be made up of a number of smaller reactors or two relatively large reactors. In any event, the total physical footprint of the power station would not change significantly if different numbers of reactors are used.

Your comment on the dependence of tourism on the natural resource base is noted. In this instance, although the broader region is known to contain many unique biodiversity assets, the proposed Bantamsklip site itself has highly localized sensitive botanical features such as patches of limestone fynbos, as well as wetlands that occur on the northern portion of the property, which portion is not to be developed. It was therefore possible, on the Bantamsklip site, to position the power station so that none of the sensitive ecosystems would be affected. Given this, as well as the physical footprint of the power station being less than 300 ha, the overall biophysical impact on the region will be small. Provided that the EIR’s recommendations in terms of disposal of spoil and warmed cooling water are implemented, marine impacts are also predicted to be acceptable.

Your comment regarding the tourism experience at Koeberg Nuclear Power Station not being applicable to Bantamsklip is noted. Other examples such as the experience with the Medupi Power Station in Limpopo are also referenced in the Tourism Impact Assessment.

Comment 13:

General

It is our contention that such scientific information that has been made available throughout the specialist reports and in the summary are largely incomplete, often times biased, misleading and generally inaccurate.

Our focus on the tourism sector particularly should not be construed as acceptance of all or any of the information or conclusions drawn in any of the specialist studies in the balance of the draft report.

The type, specification and number of reactors intended have not been made known and have illogically been separated from the impact of the power lines. As each cannot function without the other, sensible, informed consideration of neither can be made.

This fact alone constitutes a fatal flaw and makes the exercise of our constitutional right to informed public participation impossible.

Response 13:

Your comments regarding the number and types of reactors and the separation of the EIAs for the transmission lines and power station are noted.

Whilst it might be ideal to consider the potential impacts of the power station and all three transmission corridors in a single document, this is not practically possible and would result in an unmanageable process and in all likelihood a set of documentation that would make understanding of the key issues impossible. At this stage the EIR for the power station includes 28 different

specialist studies and is a very lengthy document. This amount of information is already difficult to manage and digest by the public and quadrupling the volume of this documentation by including all three power line corridors (most of which include a number of different corridors in widely dispersed areas) is not practical. It is in recognition of these facts that the DEA has approved the approach of one EIA process for the nuclear power station site and three separate EIA processes for the transmission.

Whilst no specific technology supplier or type of reactor has been identified, the generic characteristics of a Generation III nuclear power station have been identified in the Consistent Dataset (Appendix C of the Revised Draft EIR version 1).

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 these specifications 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.

Comment 14:

We are also particularly concerned that the most compelling and important issues appear to have been deliberately scoped out of the report.

1. Routine operational releases of radioactive isotopes by gaseous emissions and liquid effluents have not been adequately addressed but rather deferred to an “envelope” of nebulous quantities, the regulation of which has been deferred to the licensing process of the National Nuclear Regulator (NNR).

Response 14:

Your comment is noted.

Routine gaseous emissions of radionuclides isotopes are assessed in the Air Quality Assessment (Appendix E10 of the Revised Draft EIR) and their levels are found to be far below legal limits at all three of the alternative sites. Based on more than 20 years of sampling of the marine environment at Koeberg Nuclear Power Station (KNPS), the Marine Ecology Assessment (Appendix E15 of the Revised Draft EIR Version 1) concludes that routine emissions of radionuclides do not result in significantly elevated levels of radioactivity in marine organisms. Due to radionuclides having been recorded in very few individual organisms at KNPS, the low concentrations at which they have been recorded and the fact that compounds at equivalent levels of radioactivity have previously been recorded in these species under natural conditions, these findings are not considered indicative of any significant effect resulting from the power station on the surrounding marine environment.

Comment 15:

2. Since the two most vital isotopes – carcinogenic Strontium-90 and Cesium-137 – which have half-lives exceeding 25 years, means they tend to accumulate over many decades, and so add to the burden of disease. These important substances and their potential radiobiological impacts have been equally deferred to the NNR.

Response 15:

Your comments regarding Strontium-90 and Cesium-137 are noted.

The exact source of radiation (i.e. the isotopes that give rise to radiation) is not material to health effects. Rather, the effective cumulative **dose** of radiation from all possible sources determines whether or not health effects can be expected to occur. To isolate specific isotopes of Strontium-90 and Cesium-137 is therefore immaterial to the questions of whether or not health impacts could be expected.

The public dose limit (1 mSv per annum) is a legal limit applied internationally for the protection of human health from exposure to ionizing radiation. This is regulated in South Africa by Regulation 388 of April 2006 under the NNR Act, 1999 (Act No. 47 of 1999). Koeberg Nuclear Power Station maintains all radiation exposures to the public as low as reasonably achievable, well below this dose limit.

Both Strontium-90 and Cesium-137 isotopes were detected in environmental samples which were collected in the vicinity of the Koeberg Nuclear Power Station before 1984 (before start-up of the Koeberg Nuclear Power Station). Operation of the Koeberg Nuclear Power Station has not increased the levels of Strontium-90 in the environment and the Strontium-90 activity is decreasing in the environment with time.

Response from Independent Nuclear Specialist

In addition to what is said these shorter lived radionuclides will tend to reach an equilibrium value over time as the amount of radioactive decay is balanced by the radioactivity entering the system - clearly this is highly complicated and any reductions in emissions would tend to upset the steady state

Specialist assessments such as the Air Quality Assessment (Appendix E10 of the Revised Draft EIR Version 2) and the Radiological Assessment (Appendix E32) examine the potential health impacts of the power station refer to the dose.

Comment 16:

3. The routine release of the above-mentioned isotopes also logically leads to the contamination of both of terrestrial and marine food resources, a scientifically testable fact that has also been deferred to the NNR. <http://www.care2.com/greenliving/radioactive-fish-found-in-vermont.html>

Response 16:

Your comment is noted. As indicated in Response 14 (based on monitoring data reference in the Marine Ecology Assessment), the presence of Strontium in marine food sources could either be a result of background levels of Strontium that have occurred in the atmosphere since nuclear testing started in the 20th century, or from specific sources such as a nuclear power station. The fact that it has been found in fish does not imply that:

- The nuclear power station is the source;

- That it could result in health effects in the organisms in which it is found. It would only result in health effects if it is found in a high enough doses.

Comment 17:

4. The further negative impact on human health through ingestion of contaminated foodstuff and the direct threat to marine harvesting and agriculture is further glossed over in the report.

<http://timeforchange.org/nuclear-power-station-causing-cancer-leukemia>

Response 17:

Your comment is noted. There are no conclusive, peer reviewed studies that links normal operation of nuclear power stations to leukaemia or to contamination of foodstuffs.

Comment 18:

5. The radio-toxic legacy of the nuclear process from uranium mining through to spent fuel – its storage, containment and the concomitant risks including transportation, security risks – has also been scoped out.

<http://www.greenpeace.org/international/en/news/features/AREVAS-dirty-little-secrets060510/>

Response 18:

Your comment is noted. As indicated in Response 4, the life cycle impacts of nuclear power generation, from mining through to ultimate disposal, are beyond the scope of an EIA and an EIA is not the appropriate vehicle for the assessment of such potential impacts.

Comment 19:

From a macro-economic perspective, however, it is our considered opinion that the pursuit of a nuclear energy path would serve to bankrupt the fiscus and would not be in the best interests of the ecology or country as a whole. This has been borne out by cost overruns and opportunity costs in Finland where costs have run on from USD 3 billion to USD 6.66 billion and it's not yet complete. <http://www.reuters.com/article/idUSLS56745220080828>

1. WE RATHER PERCEIVE THE POTENTIAL FOR A MASSIVE TRANSFER OF WEALTH FROM THE SOUTH AFRICAN PEOPLE TO THE G8 COUNTRIES AND POSSIBLY CHINA AND THE CONCOMITANT OPPORTUNITIES FOR LARGE-SCALE CORRUPTION AND THE ABUSE OF PARASTATAL AND STATE POWER. IF, FOR EXAMPLE, THE CONSTRUCTION OF FOOTBALL STADIUMS MIGHT BE PERCEIVED AS AN OPPORTUNITY COST WITH REGARD TO PROPER EXPENDITURE ON BASIC SERVICES AND COMBATING CRIME, HOW MUCH MORE SO WOULD BE THE ENORMOUS COST – IN EXCESS OF R1.3 TRILLION TO PURSUE A NUCLEAR POWER INDUSTRY IN SOUTH AFRICA? PLEASE READ FOLLOWING RELATED ARTICLES: HOW MUCH WILL NEW NUCLEAR POWER PLANTS COST
2. HTTP://SCITIZEN.COM/FUTURE-ENERGIES/HOW-MUCH-WILL-NEW-NUCLEAR-POWER-PLANTS-COST-_A-14-2287.HTML
3. BUSINESS RISKS AND COSTS OF NEW NUCLEAR POWER
4. <HTTP://CLIMATEPROGRESS.ORG/WP-CONTENT/UPLOADS/2009/01/NUCLEAR-COSTS-2009.PDF>

Also see Annexure A appended hereto.

Response 19:

Your comment is noted.

There have indeed been significant cost overruns on construction of nuclear power stations. However, it must be borne in mind that the Finland site (Olkiluoto) was the first site where the new European Pressurised Reactor (EPR) unit was constructed. The French site (Flamanville) was the second and a considerable number of lessons learnt at Olkiluoto were implemented at Flamanville – hence much reduced delays were experienced. The Chinese plants used these lessons and are on time and within cost. Eskom has never intended to build a first of a kind plant type, which will reduce the risk of overruns in both construction time and cost.

Comment 20:**Nuclear 1 Draft EIA Part 3: 9.23.5 Conclusion P9-220**

If the real endeavor is, in fact, to balance the paradox quoted: *“This paradox begs for a need to attempt to balance the interests and welfare of neighbouring communities with the national interests of a secure electricity network. To this end, it is important to select a suitable site and to find compromises to maintain the sense of place of the affected area or at least ensure that the potential impacts on the sense of place are effectively mitigated to the lowest possible level”.*

Then it is anathema that renewable energy production systems, which are being rolled out effectively across the planet, here in South Africa are currently restricted to 8.75 MW until 2013. http://ae-africa.com/read_article.php?NID=1885

Cape Times, 25 January 2010, Wind is cheapest by Ingi Salgado. Quote : *“Eddie O’Connor, the chief executive of Mainsream Renewable Energy that is planning to invest R9.1 billion in wind farms in South Africa has taken on Eskom executive and said that Eskom’s record in exploiting wind or any other renewable energy source are amongst the worse in the world”.*

It cannot been (sic) seen as good news that Brain Dames has been installed as head of Eskom. He said in the same Cape Times article: *“renewable are expensive, we all know that.” O’Connor said: “I suspect the ‘we’ refer to people at Eskom because those of us not included in the ‘we’ know the opposite.”*

“Doug Kuni, MD of SA independent power producers association said Dames (ESKOM) was not comparing apples with apples, if you look at the life of (nuclear) plant a renewable energy project output over time is cheaper because there are no primary fuel costs and carbon taxes”. O’Connor also said: “There is no price risk with wind. What you see on day one is the cost you see at day 1000... or day 1 million.”

South Africa's wind energy potential alone has been [estimated at more than 50 000 MW](#) and [its solar energy capacity lies at well over 500 000 MW](#).

The potential of concentrating solar power in SA by Thomas P. Fluri
<http://www.crses.sun.ac.za/UNEP/Additional%20-%20TP%20Fluri%20The%20potential%20o%20concentrating%20solar%20power%20in%20South%20Africa.pdf>

The potential contribution of renewable energy in South Africa: Draft Update Report (includes cost information) prepared by Douglas Banks and Jason Schäffler February 2006
<http://www.earthlife.org.za/wordpress/wp-content/uploads/2009/04/potential-of-re-in-sa-feb06.pdf>

As can be seen we have unequalled opportunity in terms of our natural assets, our access to free sources of natural energy, especially solar and wind energy, in this country. It is also a well-known fact that many Independent Power Producers are beating down the doors to make renewable energy available, but are hamstrung by the lack of enthusiasm on the part of Eskom.

Clearly, the State-Owned Enterprise desires to maintain their hegemony at all costs, including political.

Cape Times 15 January 2010, Cosatu calls for end to nuke power by Melanie Gosling.

Quote: COSATU has said the nuclear option must be taken out of South Africa's future energy mix and instead of building more coal-fired power station there was an urgent need for more renewable energy. They also said that Eskom must scrap the nuclear option because "there were still a lot of question marks around nuclear plant safety, radioactive waste disposal and possible usage of uranium for weapons". COSATU also said "... renewable sources of energy will be relatively expensive at first but cheaper in the long term. Up scaling investment in renewable energy will not only address the challenge of climate change but will create all-important jobs".

At the same time, the Department of Energy and of Eskom continue to pay mere lip service to the value, development and accommodation of renewable energy sources. No account is apparently taken of the obvious benefits of decentralization that could be achieved by producing different types of power as is appropriate where it is needed most thus saving the massive line losses inherent in the National Grid.

Response 21:

Your comments are noted. It is not contested that renewable electricity generation has an increasingly important role to play in South Africa. However, a decision on the proportions that different power generation technologies contribute to South Africa's supply is outside the scope of the Nuclear-1 EIA. These decisions were taken in the Integrated Resource Plan, which has been accepted as government policy.

Comment 22:

Nuclear 1 Draft EIA part 3: P9-220

"The most controversial potential impact relates to the perceived risks associated with nuclear incidents. From a social point of view, risk is a "subjective experience" which is felt by, and is different, for everyone. Perceived risks could lead to a change in attitude which, in turn, could change behaviour. It is therefore important to ensure a reliable flow of relevant and correct information in order for communities to differentiate between perceived and real risks."

How nicely put. Perhaps the "subjective experience" of risk of those in the ivory towers at Eskom would change if they took off their rose-colored nuclear glasses, and took real cognizance of balanced scientific and financial information pertaining to the inherent short and long-term risk/benefit profile of nuclear energy. They should also recognise the fallacy, in particular, of the supposed inability of renewable energy to provide for so(-) called "base-load" energy needs. South Africans would all be better off.

Response 22:

Your comment is noted.

Comment 23:

Executive summary of the Draft Environmental Impact Report: 1.1 Project Background:

"identified renewable forms of energy, for example, solar, cannot supply base load power stations"
The above quote also applies to all the specialists who are not immune to perceptions, they select and wittingly regurgitate information and falsehoods that support what their employer wants to hear, manipulating information in an endeavor to change the attitudes and behavior of the public at large.

We could instead make real progress as a country, using long-term thinking, if we focused on becoming global leaders in the field of renewable power. We should forget about the so called 'base-load' fallacy and place ourselves at the forefront of these increasingly competitive technologies. Hereby creating an export industry, attracting fresh Foreign Direct Investment capital, and creating widespread employment opportunities, for the good of all our people. There is a concomitant advantage of broadcasting infrastructure and thus spreading greater diversity of employment countrywide. <http://www.aph.gov.au/library/pubs/rp/2008-09/09rp09.htm.power>

Response 23:

Your comment is noted.

Comment 24:

Nuclear 1 Draft EIA part 3: P9-246 Impact significance for the three alternative sites:

Technical factors (geological and geotechnical suitability and seismological risk);

Water-related factors (fresh water supply, geo-hydrology and surface water hydrology);

Social factors (traffic and transportation, noise, social impacts, economic impact, agriculture, tourism, human health risk, emergency response and site control, and safety and visual impact); and

Biophysical factors (heritage and / archaeology, air quality, freshwater ecology, vertebrate fauna, invertebrate fauna, oceanography, marine biology, botanical and dune geomorphology).

In spite of their numbers, diverse specialties and the obvious differences between the significance of the impacts at the three alternative sites, all specialists agreed that there are **no** fatal flaws at any of the sites (provided appropriate mitigation is implemented) and that all three alternative sites are suitable for development of a nuclear power station, given sufficient mitigation of impacts.

Notwithstanding the hugely controversial nature of the nuclear debate Eskom is able to locate and employ a large number of specialists in many diverse fields who are universally of like mind on this subject.

Executive summary of the Draft Environmental Impact Report p11

Quote: "all specialists agreed there are no fatal flaws at any of the sites (provided appropriate mitigation is implemented)"

We take issue with the above statement, in that, we understand from the text that among the large number of specialist studies fatal flaws were indeed found that required "mitigation", and yet nowhere are these fatal flaws listed or drawn attention to. Mitigation is the panacea of all evils, we are led to believe.

Since all the specialists are paid by Eskom (through the agency of Arcus Gibb), it is not at all surprising that the above statement could be made. **He who pays the piper calls the tune.**

Government and appointed officials in concert with the pro-nuclear lobby, who are out to sell us goods we don't want at prices we cannot afford are attempting to thwart the very real and concerted opposition to the ill-considered and poorly researched concept to impose a nuclear power station at Bantamsklip.

Examples of poor research would be the invisibility on maps or elsewhere of the 300 strong Koi San community at Buffeljags within 4 km of the site or, for that matter, Tesselaarsdal in the path of the power lines.

These are the same officials who are thwarting the positive roll-out of alternative renewable energy resources, and are instead repeating the fallacy that Concentrated Solar Power, Geothermal, solar, wind, wave energy and others can't do it.

Response 24:

The specialists employed on the Nuclear-1 EIA are required to provide objective reports substantiated by data and information collected by them. If they found that there are no fatal flaws on any of the sites, this is a conclusion that they reached of their own accord. Most of these specialists approached the EIA process in a very conservative manner, i.e. in the absence of evidence to the contrary they assumed a worst case scenario in terms of impacts caused by the proposed power station. Furthermore, these specialists all signed declarations (as required by the National Environmental Management Act) declaring their independence.

Your statement with regards to payment and how this may affect the outcome of the EIA is noted. The EIA regulations (Government Notice No. 543 of 2010) provides for fair compensation of the Environmental Assessment Practitioner (EAP) as well as the specialists that provide advice to the EAP.

As indicated in Responses above, the EIAs of the power lines and the power station are separate. Therefore, settlements such as Tesselaarsdal are outside the scope of the Nuclear-1 power station EIA.

Your comments on opposition by officials to the roll out of alternative energy refers. GIBB, as the independent EAP, is unable to comment on such a claim. As indicated above, the Integrated Resource Plan provides government's official policy on the role that renewable energy must play in South Africa's energy future.

Comment 25:

Mitigation Measures

Nuclear 1 Draft EIA part 1: 5.1 Introduction

Quote: *"the minority, nevertheless are often vociferous and sometimes militant, which has serious implications for development as they frequently engage in litigation"*

We could say that the majority are distant, uninvolved, disinterested, apathetic and or uneducated, and thus *"favour"* nuclear power in a study by the Nuclear Energy Institute.

We could say that the minority were educated, informed, critical, involved, exercised judgment and were concerned about the health of the future generations, their fellow beings, their environment and their planet to the point of litigation, their refuge of last resort.

Response 25:

Your opinion is noted.

Comment 26:

Nuclear 1 Draft EIA part 1: 5.2.1 Community Public Information Campaign

Quote: *"the lack of information and overwhelming amount of misinformation regarding nuclear power as a whole, and specifically Nuclear-1 plans, has generated all manner of popular myth, and worse-case scenarios, skepticism, and particularly doubt regarding the intentions and trustworthiness of Eskom."...*

"Specifically the impacts of nuclear power generation on the sea, the immediate environment and the sense of place."

"The above myths will be mitigated by "an aggressive community-orientated and comprehensive public information campaign".

Although the above impacts specifically mentioned are very important even more so is the following list:

It is a fact the NPS is no answer to global warming.
 It is a fact that it is not clean.
 It is a fact that it is not cheaper than renewable energy.
 It is a fact that it is negative to human health.
 It is a fact that there is no solution to nuclear waste.
 It is a fact that it is vulnerable and open to attack.
 It is a fact that the industry feeds weapon proliferation.
 It is a fact that every aspect requires high levels of security.
 It is a fact that radioactive materials are dangerous.
 It is a fact that nuclear sites contaminate their surroundings.
 It is a fact that uranium mining sites contaminate their surroundings.
 It is a fact that in the nuclear fuel processing cycle is costly.
 It is a fact that nuclear fuel and nuclear waste requires major transporting.
 It is a fact that humans are irradiated in these cycles.
 It is a fact that the nuclear industry increases the burden of disease in humans.

Links supporting these points can be found below article attached hereto: Annexure A

Response 26:

Your comments are noted. The EIA team stands by its statement that there remain many misconceptions about nuclear energy. Common misconceptions include such beliefs as all radioactivity being man-made (i.e. that there are no natural sources of background radioactivity in the environment) and that a nuclear power station can explode. There are also misconceptions that even medical nuclear science is harmful to humans, even if managed responsibly.

Comment 27:

The Hermanus Ratepayers Association Exco have read and considered the following submissions and identify fully with their contents. We support the opinions and concerns expressed and include these comments as if they were our own *mutatis mutandis*.

- Submission on Appendix E10: Air Quality Report - Mike Kantey, Watercourse cc
- **Comment on Draft EIA for Nuclear 1: Nuclear reactor planned for Thyspunt, Bantamsklip, or Duynefontein.**
Ingela Richardson
- Environmental Impact Assessment for the Proposed Nuclear Power Station ("Nuclear-1):
A comment on the Economic Impact Assessment Report - Rod Gurzynski

- Eskom- Environmental impact assessment (EIA: 12/12/20/944) for a proposed nuclear Power station and associated infrastructure. - *Strandveld Tourism & Conservation Association*
- Assessment of the potential impacts on human health environmental impact report. – Janda Macdonald

Response 27:

Your comment is noted.

Comment 28:

Conclusions and Recommendations

It will take more than promises of mitigation, reduction and compensation to convince the people of the L'Agulhas/Overburg region to surrender the Bantamsklip World Heritage Site for the purpose of the construction of any Nuclear Power Stations.

Response 28:

Your comment is noted.

Please note that the Bantamsklip site proposed for Nuclear-1 is not a World Heritage Site.

Comment 29:

Threats of “aggressive” Propaganda campaigns, will do no better, as it is resolved that we will oppose this concept on behalf of our ratepayers and the population as a whole with all the means at our disposal.

Response 29:

Your comment is noted.

Comment 30:

We hope and trust that the broad coalition of justifiably concerned citizens allied with political pressure from alliance partners and the broad church will persuade those in authority to take nuclear off the agenda and out of Africa. The Pebble Bed Modular Reactor (PMBR) program has already been shut down after costing the South African taxpayers almost 10 billion and counting with some 2.7 billion apparently unaccounted for. Perhaps they finally noticed that none of the “smart money” is backing nuclear. This debacle has wasted 10 years that could have been profitably spend on renewable energy initiatives. By now we could be using green power.

<http://www.timeslive.co.za/business/article513806.ece/PBMR-on-the-rocks-retrenches-800>
<http://www.engineeringnews.co.za/article/pbmr-company-could-shed-75-of-its-staff-after-slashes-its-budget-2010-02-18>

Response 30:

Your comment is noted.

Comment 40:

Our recommendation would be, put simply, to concentrate and focus our considerable financial, scientific and natural resources as a country on the emerging renewable energy industry. Fast track the selection, licensing and accommodation of independent power producers and connect them to the grid. Treat electricity as the expensive scarce resource that it is and avoid giving it away to our neighbours and to attract the wrong investment. **“Charity begins at home.”** Redefine our efforts and statutes to reduce consumption and the waste of electricity, while educating our population in the conservation and care of all our scarce ecological resources. Continue with the roll-out of solar water heaters and energy saving luminaries. Make energy saving mandatory for all new construction and encourage retro fitting of existing structures. Set up and fund decentralized infrastructure to support and monitor all of the above.

Given 10 years and 10 Billion Rands wasted on the PMBR. We feel sure that we will be able to look back on a success story for a country that has taken bold steps to secure our energy future, our environment and that of generations to follow. We will hold our heads high in the knowledge that we can lead instead of just following the nuclear proponents on the road to ruin.

Response 40:

Your comments are noted.

Comment 41:**Annexure A****Business Risks and Costs of New Nuclear Power
Craig A. Severance**

<http://climateprogress.org/wp-content/uploads/2009/01/nuclear-costs-2009.pdf>

“Several U.S. utilities are now advancing proposals for a new generation of nuclear power plants. Though massive cost overruns and construction delays in the 1970's and 1980's caused U.S. utilities to cancel over 130 nuclear plant orders¹, the nuclear industry is now hoping to ride a wave of concern over global warming. Can new nuclear power help the U.S. electric power industry cut greenhouse gas emissions, at a reasonable cost?”

Response 41:

Your comment is noted.

There have indeed been significant cost overruns with regard to the construction of nuclear power stations. However, it must be borne in mind that the nuclear power stations such as Olkiluoto in Finland were the first sites where the new European Pressurised Reactor (EPR) was constructed. The French site (Flamanville) was the second and a considerable number of lessons learned at Finland site were implemented at Flamanville – hence much reduced delays were experienced. The Chinese plants used these lessons and are on time and within cost. Eskom has never intended to build a first of a kind plant type, which obviously will reduce the risk of overruns in both construction time and cost.

Comment 42:***EXECUTIVE SUMMARY***

It has been an entire generation since nuclear power was seriously considered as an energy option in the U.S. It seems to have been forgotten that the reason U.S. utilities stopped ordering nuclear power plants was their conclusion that nuclear power's business risks and costs proved excessive.

With global warming concerns now taking traditional coal plants off the table, U.S. utilities are risk averse to rely solely on natural gas for new generation. Many U.S. utilities are diversifying through a combination of aggressive load reduction incentives to customers, better grid management, and a mixture of renewable energy sources supplying zero-fuelcost kWh's, backed by the KW capacity of natural gas turbines where needed. Some U.S. utilities, primarily in the South, often have less aggressive load reduction programs, and view their region as deficient in renewable energy resources. These utilities are now exploring new nuclear power.

Estimates for new nuclear power place these facilities among the costliest private projects ever undertaken. Utilities promoting new nuclear power assert it is their least costly option. However, independent studies have concluded new nuclear power is not economically competitive. Given this discrepancy, nuclear's history of cost overruns, and the fact new generation designs have never been constructed anywhere, there is a major business risk nuclear power will be more costly than projected. Recent construction cost estimates imply capital costs/kWh (not counting operation or fuel costs) from 17-22 cents/kWh when the nuclear facilities come on-line. Another major business risk is nuclear's history of construction delays. Delays would run costs higher, risking funding shortfalls. The strain on cash flow is expected to degrade credit ratings.

Generation costs/kWh for new nuclear (including fuel & O&M but not distribution to customers) are likely to be from 25 - 30 cents/kWh. This high cost may destroy the very demand the plant was built to serve. High electric rates may seriously impact utility customers and make nuclear utilities' service areas non competitive with other regions of the U.S. which are developing lower-cost electricity.

Craig A. Severance, CPA is co-author of *The Economics of Nuclear and Coal Power* (Praeger 1976)"

<http://www.greenpeace.org/international/en/news/features/AREVAS-dirty-littlesecrets060510/>
<http://climateprogress.org/2009/03/08/ponzi-scheme-madoff-friedman-natural-capitalrenewable-resources/>
<http://timeforchange.org/nuclear-power-station-causing-cancer-leukemia>
<http://www.globalresearch.ca/index.php?context=va&aid=13825>
<http://www.countercurrents.org/cc-green110405.htm>
<http://www.scientificamerican.com/article.cfm?id=nuclear-cannot-solve-climate-change>
<http://www.greenpeace.org/international/en/news/features/activists-raid-south-african-p/>
<http://www.fin24.com/Economy/Eskom-fingered-in-Koeberg-report-20060813>
<http://www.energyscience.org.au/BP16%20BaseLoad.pdf>
<http://www.aph.gov.au/library/pubs/rp/2008-09/09rp09.htm>
<http://repairyourworld.blogspot.com/2008/12/nuclear-vs-renewables-debate-in-south.html>
<http://timeforchange.org/nuclear-power-station-causing-cancer-leukemia>

Response 42:

Please refer to Chapter 4 and 5 of the RDEIR Version 2 for further information on the costs of nuclear energy.

With regard the costs overruns on nuclear power projects, please refer to Response 41.

Your claims of the operational cost of nuclear power are noted and will be considered within the EIR.

Your claim that newer generation nuclear power stations have not been constructed anywhere is noted. This claim is not correct. As indicated in responses above, the EPR (a Generation III plant) is under construction in Finland and France.

Comment 43:**Moody's Nuclear sector investment analysis**

<http://www.greens-efa.org/cms/topics/dokbin/206/206749.pdf>

"October 2007 "Special Comment" the capital market service company Moody's delivers a stunning U.S. nuclear sector analysis:

"Moody's does not believe the sector will bring more than one or two new nuclear plants on line by 2015, a date cited by a majority of the companies currently highlighting their nuclear ambitions. The complexity associated with the permitting process as well as the execution risks associated with construction projects of this nature should not be underestimated. (...) Moody's believes that many of the current expectations regarding new nuclear generation are overly ambitious. In fact, the timing associated with commencing construction and making the next nuclear unit commercially available could be well beyond 2015 and the costs associated with the next generation of nuclear build could be significantly higher than the approximately \$3,500/kW estimates cited by many industry participants."26 "nuclear competence alliance" between the four major research centres with links to academic institutions, utilities and the industry has been established in 2000 but, so far, has not been able to stop the erosion of well educated young people able to replace the rapidly aging current workforce. As Lothar Hahn, managing director of the German company GRS (Society for Reactor Safety), points out, the consequences could be extremely serious:

"First studies indicate that deficiencies in maintaining knowledge at state-of-the-art levels and a subsequent degradation in education and training of operating personnel may endanger the safe operation of nuclear installations. Furthermore, knowledge deficits at authorities and expert organisations due to a lack of qualified successors to retired experts have been depicted as an imminent threat to the qualified supervision of reactor plants and thereby to safe plant operation."41

Response 43:

Your comment is noted.

As part of the inter-governmental agreements signed by South Africa, students and professionals in training (PIT) have gone abroad to the counterpart countries to gain more knowledge and experience on nuclear energy. These students and PIT's will return to South Africa with this knowledge and significantly contribute to the skills base within this sector in South Africa.

Comment 44:

Former NRC Commissioner Peter Bradford, who was involved in the licensing of some 25 nuclear reactors, comes to a severe judgement on the prospects of nuclear power: "Those who tell you things like "It could save the earth" 54 or "Clean, green atomic energy can stop global warming" 55 or "Nuclear energy just may be the energy source that can save our planet from catastrophic climate change"56 are inviting you into a dangerous la-la land in which nuclear power will be over subsidised and under-scrutinized while other more promising and more rapid responses to climate change are neglected and the greenhouse gases that they could have averted continue to pollute the skies at dangerous rates."57 Former NRC Commissioner Peter Bradford, who was involved in the licensing of some 25 nuclear reactors, comes to a severe judgement on the prospects of nuclear power:

"Those who tell you things like "It could save the earth"54 or "Clean, green atomic energy can stop global warming" 55 or "Nuclear energy just may be the energy source that can save our planet from catastrophic climate change"56 are inviting you into a dangerous la-la land in which nuclear power will be over-subsidised and under-scrutinised while other more promising and more rapid responses to climate change are neglected and the greenhouse gases that they could have averted continue to pollute the skies at dangerous rates."57 "Those suffering from nuclear amnesia have forgotten

why nuclear power faded from the energy scene in the first place, how many times it has failed to deliver, how often it has disappointed its most determined advocates, how extravagantly it has squandered unparalleled, unstinting support from taxpayers around the world, leaving them with burdens that may last for millennia.”⁵⁸

Response 44:

Your comments are noted.

It is not the intention of the Nuclear-1 EIA process to consider the merits of nuclear power generation vs. other forms of power generation in principles. Environmental Impact Assessment as a tool of environmental management is not the appropriate tool to consider this question, since it is a project-specific tool that investigates a particular project on a defined site or sites.

Your comments about the inability of nuclear power to “save the earth” are also noted. It is not contended in the Nuclear-1 EIA that nuclear electricity generation should be regarded as a panacea to combat climate change. It is but one of a combination of solutions, which must include renewables and other sources. Renewables on their own are also not, however, a panacea for power generation. Renewables must make up a larger proportion of South African power generation (the current goal in the Integrated Resource Plan is 17.8 GW), but as far as wind generation is concerned, the potential in South Africa is limited. It must also be borne in mind that a mixture of base load and other supply alternatives are required.

Comment 45:

In June 2005, the trade journal Nuclear Engineering International published the analysis of the 2004 Edition of the World Nuclear Industry Status Report under *their* headline. “On the way out - In sharp contrast to multiple reporting of a potential ‘nuclear revival’, the atomic age is in the dusk rather than in the dawn”. At the end of 2007, we have nothing to add” Sen. McCain keeps saying, “If France can produce 80 percent of its electricity with nuclear power, why can't we?” Wrong question, Senator. The right question is: Why would we? Energy efficiency and renewables are the key to affordable, carbon-free electricity. They should be a focus of national energy and climate policy. Not nukes.

The HRA has read and allies itself with the following submissions, which should be regarded as having been incorporated into this submission:

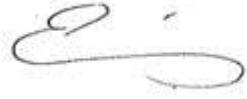
1. Earthlife Africa, Johannesburg
2. Greenpeace Africa
3. Janda Macdonald
4. Dyer Island Conservation Trust
5. Teslaarsdal Action Group
6. Rod Kurzynski
7. Dr Yvette Abrahams Commissioner for Gender Equality
8. Koeberg Action Alliance (KAA)
9. Strandveld Tourism and Conservation Association (STCA)

Response 45:

Your comment is noted.

Yours faithfully

for GIBB (Pty) Ltd

A handwritten signature in black ink, consisting of a large, stylized 'G' followed by a smaller 'I' and a long, sweeping underline.

The Nuclear-1 EIA Team