1/03 29 Economic

Eskom Submission to the Parliamentary Select Committee on Economic Development subsequent to the Oversight Programme meetings in the Eastern Cape on 22 February 2011

The purpose of the document is to provide a briefing to the Select Committee on Economic Development on the issues that were raised during the meetings of the Oversight Programme in the Eastern Cape held in St Francis Bay on 22 February 2011. The meetings were those related to the environmental impact assessment and other studies that are currently underway regarding the potential use of the Thyspunt site for a proposed nuclear power station.

1. BACKGROUND

1.1 The Nuclear Site Investigation Programme

The importance of locating nuclear power stations on the coast was already recognised in the 1980's, and resulted in the commissioning by Eskom of the Nuclear Site Investigation Programme (NSIP). The NSIP studies were restricted to the South African coastline on the basis of various factors, for example, that sea water would be used for cooling thus avoiding the need for using scarce natural water resources, and that future load growth would be in coastal regions. Most of the South African coastline was investigated as part of the NSIP studies. The parts that were not investigated were areas within 50 km of the coastal cities and the coastline of the previous homeland areas of the Ciskei and Transkei.

The studies, undertaken by consultants contracted by Eskom, were predicated on a number of criteria, such as demography (existing population densities), ecological sensitivity, geology, the characteristics of the coastal area and the tides and wave action and seismicity, amongst others.

The NSIP studies identified four suitable sites (**other than the existing Koeberg site**) on the South African Coast that met the criteria for a Koeberg-type (i.e. using pressurized water reactor (PWR) technology) nuclear power station:

- **East coast (KwaZulu-Natal):** No suitable sites were identified, due to the high population density and regional seismic activity.
- **Eastern Cape coast:** The most suitable site identified was that of Thyspunt (originally referred to as a "double" site called Tony's Bay and Thyspunt) situated between the towns of Oyster Bay in the west and St Francis Bay in the East

- **Southern Cape coast:** The most suitable site identified was that of Bantamsklip, situated near Gansbaai approximately mid-way between Danger Point and Quoin Point
- **West coast in the Northern Cape:** Two suitable sites were identified, Brazil and Schulpfontein, located between Kleinsee in the north and Hondeklipbaai in the south.

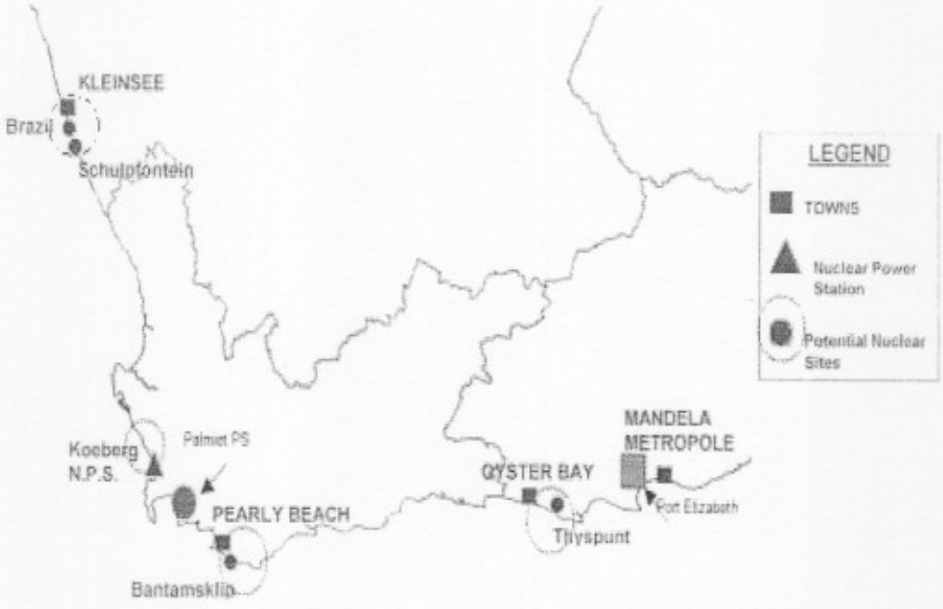

Figure1.1. Map for location of the proposed nuclear sites

2007 review

As part of the Scoping phase of the Environmental Impact Assessment (EIA) process – discussed in section 1.2 below – the appointed Environmental Assessment Practitioner (EAP), Arcus Gibb reviewed the NSIP studies. The report of the review is one of the appendices of the EIA Final Scoping Report. The EAP concluded that the NSIP process was a thorough process.

The review noted that the criteria used in the NSIP process excluded areas within 50 km of cities and the coastal areas of the previous homeland areas of the Ciskei and Transkei. The NSIP did include an area north of Port Elizabeth known as Alexandria. This area was deemed less suitable than Thyspunt due to ecological sensitivity and seismic considerations.

1.2 The Environmental Impact Assessment processes

a) The EIA for the proposed construction of a nuclear power station

Eskom appointed an experienced Environmental Assessment Practitioner (EAP), Arcus Gibb, in August 2006, to undertake an Environmental Impact Assessment (EIA) for the proposed construction of a nuclear power station and associated infrastructure (Nuclear-1). The EIA application submitted to the Department of Environmental Affairs (DEA) is for the construction of one nuclear power station, of up to 4000 MW capacity, on one site.

Scoping phase of the EIA

Five alternative sites were considered in the scoping phase of the EIA process, namely, the 4 sites that had been identified in the NSIP process (refer section 1.1 above) and the Koeberg site. The five sites are: (1) Brazil and (2) Schulpfontein in the Northern Cape on the west coast between Kleinzee and Hondeklip Bay, (3) Bantamsklip in the Western Cape on the coast next to Pearly Beach, east of Hermanus, (4) Duynefontein, in the Western Cape next to the existing Koeberg power station and (5) Thyspunt in the Eastern Cape on the coast between Oyster Bay and St Francis Bay.

The public meetings for this EIA commenced in June 2007. Through a series of stakeholder identification and involvement mechanisms, approximately 7 000 Interested and Affected Parties were identified, registered on the database and subsequently on an on-going basis have been provided with information regarding the proposed project. More than 30 interventions (public meetings, open days, focus group meetings, and key stakeholder workshops) were held during the scoping phase of the EIA in towns and villages in the vicinity of the 5 sites.

The competent authority, the DEA, in consultation with the relevant provincial environmental authorities (the Department of Environmental Affairs and Development Planning [DEA&DP] of the Western Cape and the Department of Economic Development and Environmental Affairs [DEDEA] of the Eastern Cape) approved the Scoping Report in November 2008. This approval included the recommendation that two of the original five alternative sites assessed during the Scoping Phase, namely Brazil and Schulpfontein in the Northern Cape, be excluded from further consideration in the EIA.

Detailed assessment / specialist study phase of the EIA

Detailed specialist studies were thus undertaken for the Thyspunt, Bantamsklip and Duynefontein sites. The comments (concerns and issues) raised during the public participation interventions were documented together with responses from the EAP and Eskom and, where relevant, were taken into account in determining the scope of the specialist studies.

The specialist studies covered the following aspects:

1). Geology and geological risk
2). Seismological risk
3). Geotechnical suitability
4). Hydrological
5). Geo-hydrological
6). Freshwater supply
7). Air quality and climate
8). Dune geomorphology
9). Botanical
10). Freshwater ecology (wetland)
11). Terrestrial vertebrate fauna
12). Terrestrial invertebrate fauna
13). Marine biology
14). Economic impact
15). Social impact
16). Visual impact
17). Heritage impact
18). Agricultural impact
19). Tourism impact
20). Noise impact
21). Human health risk
22). Transportation
23). Emergency response
24). Site control and access
25). Nuclear waste disposal
26). Integration with the transmission network
27). Estimating the 1:100 year flood line from the sea
28). Oceanographic impact assessment

A draft Environmental Impact Report (EIR) was published for public comment in March 2010. The draft EIR integrated the results and recommended mitigation actions of all the respective specialist studies and made an overall recommendation regarding the proposed activity.

Specifically, the draft EIR recommended that the proposed nuclear power station and associated infrastructure is constructed on the Thyspunt site.

After the draft EIR was published, a further round of 19 public participation interventions was held in towns in the vicinity of the three sites. Valuable comments were received from the public. In addition there were concerns raised by some members of the public in the vicinity of the Thyspunt site that the specialists had not adequately addressed certain issues, for example, impact on the squid industry, the access routes through Humansdorp, clarification of the actual footprint of the plant and auxiliary infrastructure and confirmation of social aspects. The Environmental Assessment Practitioner was therefore requested by Eskom to enhance the relevant

specialist studies and prepare a revised Draft Environmental Impact Report – which would be published for public comment.

The revised draft EIR is currently in preparation and is expected to be made available for public review and comment in the first half of 2011. Another round of public participation interventions will be held to discuss the differences between the original and the revised draft EIRs. Comments on the revised draft EIR will be taken into account in finalising the document and thereafter, a Final EIR will be submitted to the Department of Environmental Affairs for evaluation and a decision on an environmental authorisation.

b) *The EIA for the associated transmission lines and infrastructure for each of the three sites*

Eskom also appointed independent Consultants to undertake environmental impact assessments for the transmission lines and infrastructure that would be required for a nuclear power station. Three different Consultants were appointed, one for each of the EIAs for the transmission lines and infrastructure that would be required if a nuclear power station is constructed on any one of the three sites, Thyspunt, Bantamsklip or Duynefontein respectively.

i) Transmission integration with Thyspunt site:

Transmission integration, if a nuclear power station is constructed on the Thyspunt site, involves the construction of five 400 kV transmission lines, the upgrade of two existing substations and the construction of a new Port Elizabeth Substation. Two corridors are proposed, a Northern Corridor which will contain 3 lines and a Southern Corridor which will contain 2 lines. The proposed corridors will run between the proposed Thyspunt Nuclear Power Station High Voltage Yard to the existing Grassridge and Dedisa substations near Port Elizabeth.

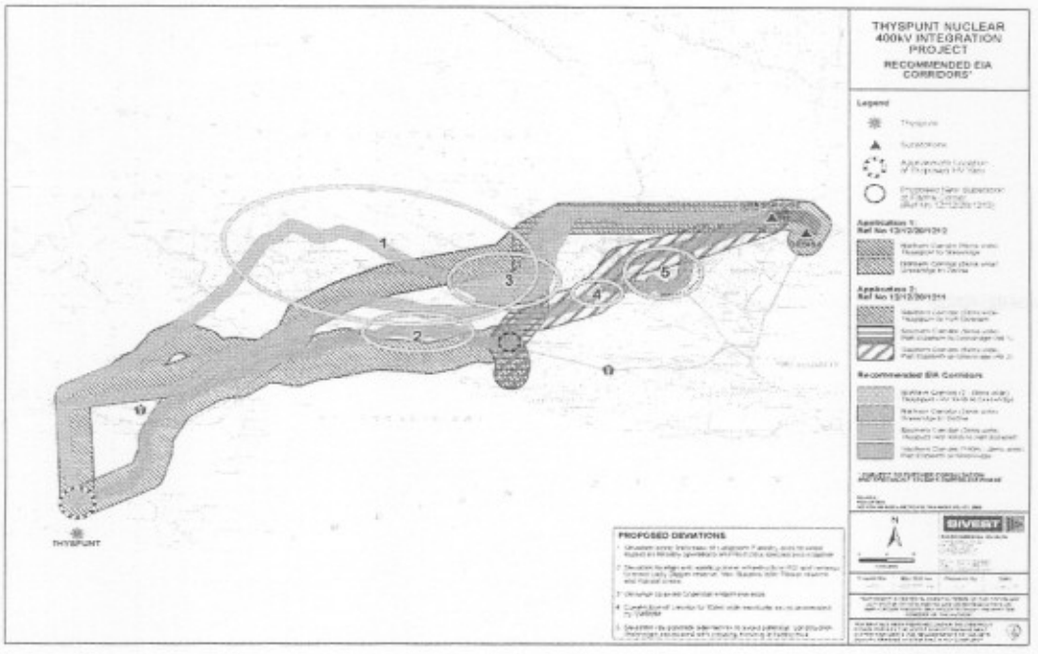

Figure 1.2.1: Thyspunt Transmission Integration proposed corridors

The draft Scoping Report was published in May 2009 for public comment. Public meetings and focus group meetings were held in towns along the alternative proposed routes between the Thyspunt site and Port Elizabeth.The Final Scoping Report, incorporating comments received during the public interventions, and the Plan of Study for the detailed impact assessment was submitted to DEA mid-August 2009. The DEA accepted the Final Scoping Report and the Plan of Study for the detailed impact assessment (specialist studies) in October 2009.

The specialist studies have been completed and the draft Environmental Impact Report (EIR) is being prepared and will be published for public review and comment in the next few months. A further round of public participation interventions will be held to discuss the draft EIR. Comments received on the draft EIR will be taken into account in preparing the Final EIR, which is expected to be submitted in August 2011 to the DEA for evaluation and a decision on an environmental authorisation.

ii) Transmission integration with Bantamsklip site:

Due to the number of lines and the extent of the study area required for the transmission integration with the Bantamsklip site (if a nuclear power station is constructed on that site), two separate EIA applications were submitted for which environmental impact assessments will be undertaken:

Application 1:- four 765 kV lines from the proposed HV-yard at Bantamsklip to the proposed Kappa substation, which will be located 26 km north-west of Touwsriver

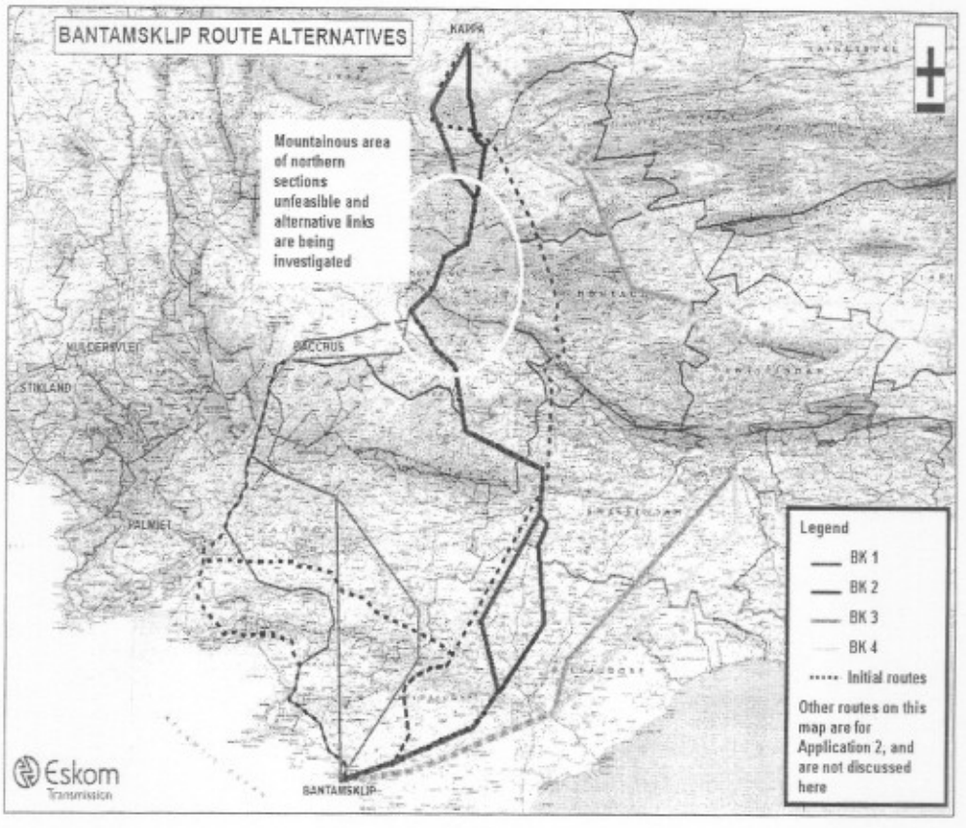

Figure 1.2.2a: Bantamsklip Transmission Integration proposed route (corridor) alternatives:

Bantamsklip to Kappa substation

Application 2 includes the following:

- Construction of four 400 kV lines from the Bantamsklip site to the Bacchus Substation;

- Construction of one 400 kV line from the Bacchus Substation to the Muldersvlei Substation

- Extension of the Bacchus Substation.

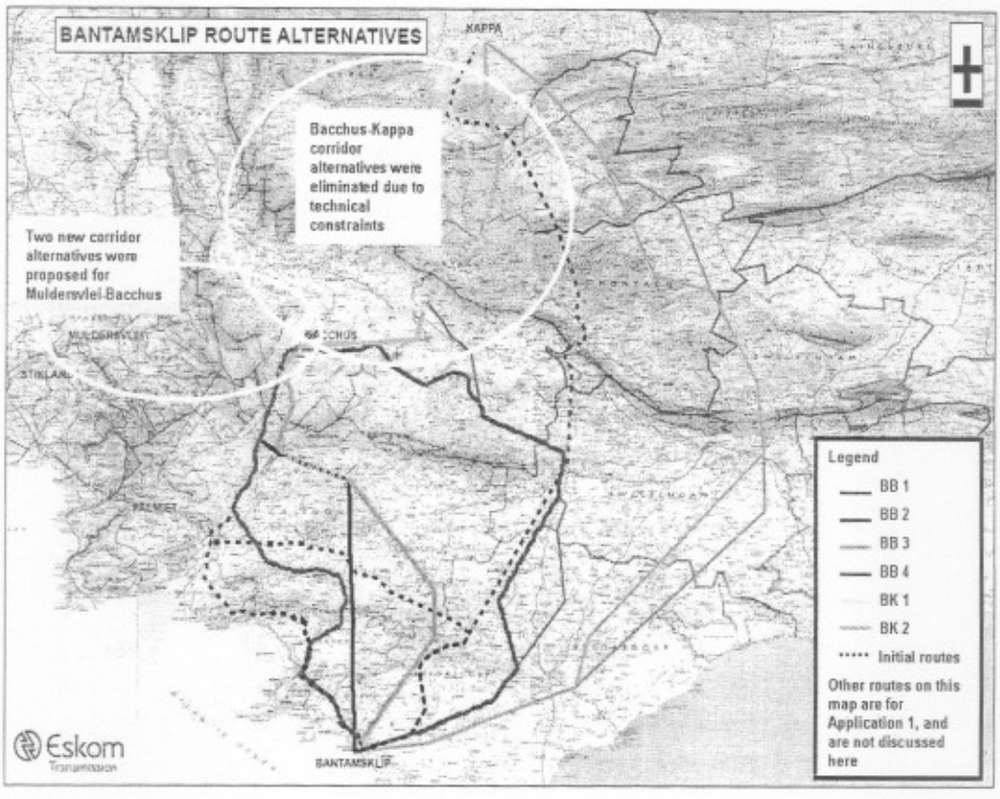

Figure 1.2.2b: Bantamsklip Transmission Integration proposed route alternatives (corridors) Bantamsklip to Bacchus Substation / Bacchus to Muldersvlei Substation

The maps indicate the different alternative routes that have been proposed as a result of the scoping studies.

The draft Scoping Report was published in March 2009 for public review and comment. Public meetings and focus group meetings were held in towns along the alternative proposed routes to discuss the findings of the scoping studies. As a result of these meetings, some alternative routings have been proposed, which implies that a Revised Draft Scoping Report will be produced and published for public comment.

The revised draft Scoping Report is still in preparation.

iii) Transmission integration with Duynefontein (Koeberg) site:

Due to the number of lines and the extent of the study area, the EIA for the Transmission integration with the Duynefontein (Koeberg-2) site(if the proposed new nuclear power station is constructed on that site), three separate EIA applications were submitted for which environmental impact assessments will be undertaken:

Application 1 includes the following:

- Construction of four 400 kV lines from the proposed HV-yard at the Duynefontein (Koeberg-2) site to the proposed Omega substation, a distance of approximately 11 km.

Application 2 includes the following:

- Construction of one 400 kV line from the proposed HV-yard at the Duynefontein (Koeberg-2) site to the Acacia substation;

- Construction of one 400 kV line from the Acacia substation to the Phillipi substation;

- Upgrading of the Acacia substation.

Application 3 includes the following:

- Construction of one 400 kV line from the proposed HV-yard at the Duynefontein (Koeberg-2) site to the Stikland substation.

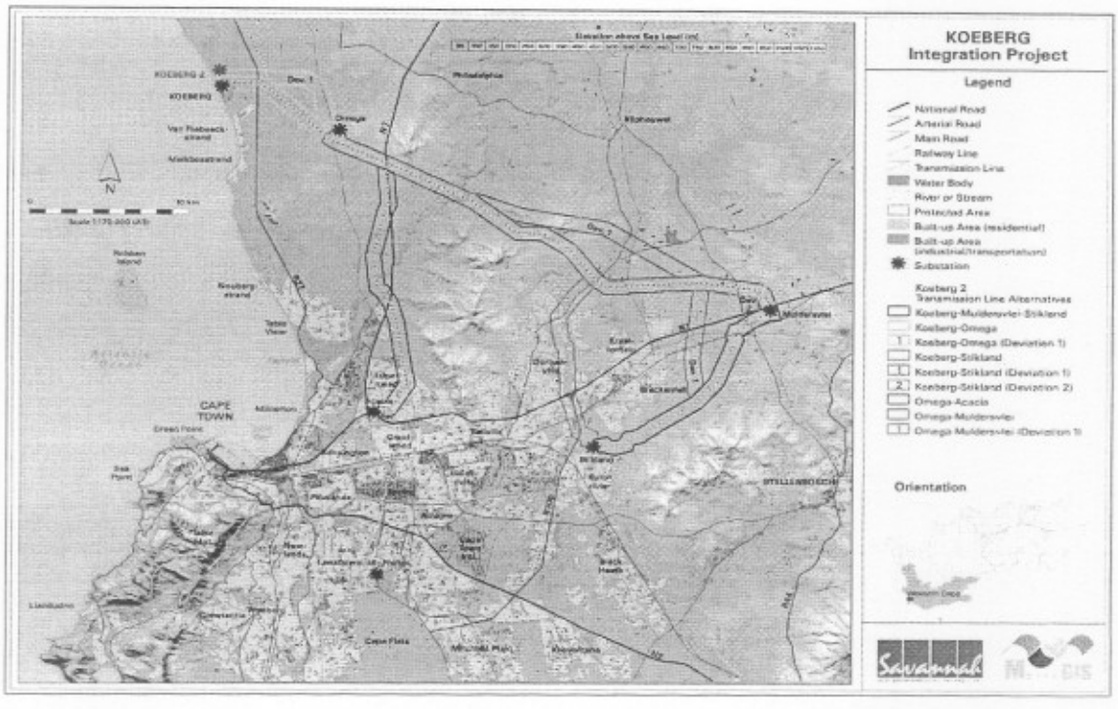

Figure 1.2.3: Duynefontein (Koeberg-2) Transmission Integration proposed corridors

The draft Scoping Report was published in November 2009 for public comment. Public meetings and focus group meetings were held in towns along the alternative proposed routes.The Final Scoping Report, incorporating comments received during the public interventions, and the Plan of Study for the detailed impact assessment was submitted to DEA, who approved the Final Scoping Report and the Plan of Study for the detailed impact assessment (specialist studies) in February 2010.

The specialist studies were completed and a draft Environmental Impact Report (EIR) published for public review and comment in May 2010. A further round of public participation interventions was held to discuss the draft EIR. Comments

received on the draft EIR have been taken into account in preparing the Final EIR, which was submitted in November 2010 to the DEA for evaluation and a decision on an environmental authorisation.

All documentation related to these EIAs is maintained on the Eskom website www.eskom.co.za/eia .

c) EIA for a 132 kV distribution line

This EIA covers the development of a 132 kV distribution line that will connect the existing Melkhout substation outside Humansdorp to the proposed new Oyster Bay substation outside Oyster Bay. The proposed distribution line will be approximately 30 km long. Two potential routes have been identified. The distribution line will supply electricity to the proposed nuclear power station at Thyspunt during the construction phase of the project (if it is approved). During the operation phase, the distribution line will be another supply into the national transmission network.

In accordance with the requirements of the National Environmental Management Act No. 107 of 1998, and relevant Environmental Impact Assessment (EIA) regulations made in terms of this Act (Government Notice No R.544) and promulgated in 2006, the proposed project requires a Basic Assessment.

Coastal & Environmental Services (CES) have been appointed by Eskom as Environmental Assessment Practitioner (EAP) to conduct this EIA.

1.3 Public participation and consultation

In the 1980s/1990s, when the Nuclear Siting Investigation Programme was initiated, and which identified 4 potential sites (in addition to the existing Koeberg site) for a nuclear power station along the SA coastline, various interventions (one on one discussions, small group meetings with associations or interest groups or key stakeholders, public open days, public meetings, discussions with local and provincial government officials) were held in the vicinity of the sites. There was thus extensive public communication regarding Eskom's aspirations to use the identified sites in the future for nuclear power stations.

Communication interventions with the public, interest groups and key stakeholders in the vicinity of the identified sites resumed in the late 1990s/2000s during the EIA undertaken for the Pebble Bed Modular Reactor Demonstration plant (PBMR DPP). From approximately 2001, it was made clear during those interventions that the existing Koeberg site was being considered for the PBMR DPP, but that the 4

potential sites previously identified, Thyspunt, Bantamsklip, Brazil and Schulpfontein, were still being retained for future nuclear power stations.

The first round of public meetings for the EIA for the proposed Pressurised Water Reactor (PWR) nuclear power station commenced in June 2007. The Public Participation Process (PPP) that has been undertaken for this EIA is considered to be one of, if not the most, comprehensive in South Africa's EIA history. Through a series of stakeholder identification and involvement mechanisms, more than 7 000 Interested and Affected Parties were identified, registered on the database and subsequently on an on-going basis have been and are being provided with information regarding the proposed project. More than 50 interventions (public meetings, open days, focus group meetings, and key stakeholder workshops) have been held since the start of the EIA.

The comments, concerns and issues raised during the EIA public participation interventions have been documented together with responses from the EAP and Eskom and, where relevant, were taken into account in determining the scope of specialist studies.

Throughout the EIA process Eskom has made it clear that more than one nuclear power station will be required in the future and thus more than one nuclear site will be required. The EIA that is currently underway is for a proposed 4000 MW power station (Nuclear-1) at one of the three sites (Thyspunt, Bantamsklip or Duynefontein). The current EIA will recommend the preferred site for Nuclear-1 from the three sites under consideration. The remaining two sites will also be considered for future power stations. The two sites on the West Coast, Brazil and Schulpfontein, are also potentially available, although their integration into the transmission will be difficult and costly, mainly due to their remote location.

Eskom has indicated, and it is reflected in the Nuclear Energy Policy of South Africa, that a new Nuclear Siting Investigation Programme will be initiated to identify and licence additional nuclear sites for the future, particularly in the eastern parts of South Africa.

During the EIA public participation interventions, it has also been clarified that the NNR will perform the safety evaluation of the proposed power station and determine the emergency planning requirements. The NNR licensing process provides for public hearings – hence there will be a further opportunity for Interested and Affected Parties to comment on the nuclear safety and the emergency plan aspects of the proposed nuclear power station.

Extensive public participation interventions have also been held for the EIAs being undertaken for the transmission lines and associated infrastructure for the integration between the sites under investigation and the national transmission network.

Independent of the EIA process, Eskom has also undertaken nuclear awareness workshops with communities and community organisations and local authorities in the vicinity of all five sites.

1.4 Cooperative Agreement between the National Nuclear Regulator and the DEA

The National Nuclear Regulator Act assigns responsibility to the National Nuclear Regulator (NNR) to licence nuclear installations. The applicant for a licence is required to submit a safety report and any other supporting documents, including a site safety report, which the NNR evaluates before taking a decision on granting the licence. The NNR Act defines the objects of the Regulator as, amongst others, to provide for the protection of persons, property and the environment against nuclear damage through the establishment of safety standards and regulatory practices and to ensure that the provisions for nuclear emergency planning are in place.

The National Environmental Management Act assigns responsibility to Environmental Authorities (such as the Department of Environmental Affairs - DEA) to protect the environment. The definition of the environment however includes both the physical and the social environment.

There is thus an overlap of responsibilities between the NNR and the Environmental Authorities with respect to radiological impacts on the environment. A cooperative agreement was signed between the NNR and DEA to manage their respective responsibilities and avoid duplication of legislative oversight. From the Cooperative Agreement it is clear that the NNR is responsible to evaluate the safety of the proposed power station and determining what emergency planning zones and activities are required.

The NNR can only commence the formal evaluation of the safety of the proposed power station and determine the emergency planning requirements after Government/ Eskom has determined the vendor and hence the design for the proposed nuclear power station.

The granting of a positive environmental authorisation does not preclude the requirement for a nuclear installation licence and vice versa.

2. ISSUES RAISED BY THE THYSPUNT ALLIANCE

The Thyspunt Alliance and other St Francis Bay residents concentrated, both in the Focus Meeting as well as in the Public Meeting, on a number of issues that have also previously been raised in the EIA public meetings. In this section the issues raised by the Thyspunt Alliance, either during the visit of the Select Committee or previously during the EIA meetings, are shown in bold italic font, with the Eskom response following in normal font:

(i) ***The original 1990 siting studies are flawed and constitutionally invalid - they were undertaken under the Apartheid regime and had a racist bias - they did not take adequate cognisance of the social impacts***

The siting (NSIP) studies are discussed in depth in section 1.1 above. The independent Environmental Assessment Practitioner (EAP), Arcus Gibb, concluded that the NSIP process was a thorough process.

Site selection is a first step in the process of identifying a suitable site and the sites selected have to undergo a formal legal process for qualification. The nuclear site investigation programme that Eskom embarked on in the 1980s/90s is not, and was not purported to be a process under the National Environmental Management Act (NEMA) and should not be construed as such. Although the potential sites were identified in the 1990s, such sites have to undergo appropriate assessment to test whether they meet legal requirements under NEMA and other laws. The important issue is whether a site satisfies the requirements of NEMA and other laws. It is only reasonable that investigated sites are limited as it is not practical to assess the whole country as a potential site for development. Further, the EIA process also enables verification of information and establishment of new facts which would otherwise not have been known. The information unearthed during the EIA process would be taken into consideration for a decision to be made. Therefore, emphasis should not be placed on the information available only during the selection of the site which is only a first step in the process.

(ii) ***if a nuclear power plant is constructed it should be at Coega and not at Thyspunt - this would save on transmission line infrastructure, and the upgrading of roads and bridges between Port Elizabeth and Thyspunt; there is a harbour at Coega and a ready supply of labour (Motherwell community) - the previous Chairman of Eskom committed that Coega would be investigated before a decision is made on Thyspunt***

In 2007 when this was first raised there was not a site available to develop within the IDZ. However, Eskom again approached the Coega Development Corporation in May 2010. There are many positive aspects associated with this site such as location to the port, developed infrastructure, location relative to transmission infrastructure and the social infrastructure developed for the Coega IDZ. However, this has been investigated and reconfirmed the outcomes of the NSIP study. An investment of R 33 million and 5 years of study could bring the geological database for the Coega IDZ on par with what is currently available for Thyspunt. But having undertaken the studies, does not guarantees that a suitable site will be found in the vicinity of the Coega IDZ.

The position of the Coega fault needs to be considered carefully before undertaking any geological investigations for nuclear siting in the vicinity of the Coega IDZ. The Coega fault represents the south-easternmost extension of a much larger fault system called the Ceres-Kango-Baviaanskloof-Coega fault system, which extends in an east-west direction for more than 700 km. A palaeoseismic trenching study east of De Rust yielded evidence of a early Holocene (approximately 10,000 years ago) reactivation along the Kango section of this fault system, which is estimated to have caused a seismic event in excess of local magnitude of 7 on the Richter Scale. New information on the adjacent (to the east of the Kango section) Baviaanskloof fault segment indicated that the western end of this segment is micro-seismically active. Strong evidence of reactivation of the Coega fault after the Pliocene (the interval from 5.3 – 2.5 million years ago) was found near Port Elizabeth.

The currently available geological data indicates that the Coega fault, with the known Holocene reactivation, should be considered to pose a risk with regard to future seismicity. With the current limited state of knowledge with respect to geology and seismicity, the site cannot be immediately disqualified, but for this specific EIA process, the site cannot be considered as a reasonable and feasible site.

(iii) ***The current infrastructure in the Kouga area is already inadequate and overloaded (schools, clinics, hospitals, sewerage, water supply, roads etc) - who will pay for the development of new infrastructure?***

The social impact assessment report addresses these concerns. Further discussions are required with the local authorities if and when the project is approved in order to clarify the partnership with local authorities to enhance/expand the infrastructure requirements.

(iv) ***Construction at Thyspunt will require the pumping into the sea of the excavation spoil (sand) - this will destroy the breeding grounds of squid and thus destroy the squid industry in the area - stated to be 32% of South Africa's squid industry***

There are several aspects which could impact on the squid fishing industry, namely the discharge of spoil during construction, the temperature change from the cooling water discharge and the security exclusion zone. The marine, social and economic studies covered these aspects. The outcomes of these three studies were that the impact would not be significant. The marine specialist marine concluded that the impact will be localised and of short duration. From a temperature tolerance perspective, the area predicted to be affected represents less than one percent of the coastal squid spawning ground.

However during the key focus group meetings some aspects were raised by the public which had not been comprehensively documented in the specialist reports. Consequently, the specialists are reviewing their information and conclusions and will update the information in their reports as appropriate. These reports will be included in the Revised Draft Environmental Impact Assessment.

(v) Apart from the squid industry, tourism will also suffer, collectively resulting in a loss of employment in the area

The specialist tourism report indicates that no overall discernible long-term impact on tourism is foreseen. The strong preservation instinct within the community promotes a negative reaction to all agents of change, not least a nuclear power station perception. The Tourism impact study indicates that perception is a time-based phenomenon and, with the passing of time, tourism agents and stakeholders will adjust their businesses to maximise their exploitation of the natural tourism product. Eskom's experience with Koeberg Nuclear Power Station and the construction of other power stations such as Medupi (at Lephalale in Limpopo Province) is that the occupation rates of accommodation in the surrounding areas increase dramatically.

(vi) Thyspunt is not a viable site, since a nuclear emergency plan (the evacuation aspects) could not be implemented - hence the NNR will not licence the plant - the EIA is being done for a Generation III design but the Government has stated Gen III is too expensive and hence Eskom will have to buy Gen II technology - but the NNR emergency exclusions zones for Gen II technology fall outside the envelope of the EIA; Eskom is thus wasting money by pursuing the EIA before the NNR has made a decision on the site

There is no clear cut distinction between Generation II and Generation III nuclear power stations. Many Generation II nuclear power stations (such as Koeberg) have been upgraded to meet modern nuclear safety standards and are thus, from a nuclear safety standards perspective, in many respects equivalent to Generation III nuclear power stations. The EIA was thus conducted based on a set of enveloping parameters for the proposed nuclear power station. These enveloping parameters

cater for the designs of modern nuclear power stations that are available in the world today.

In particular, the enveloping parameters assumed modern emergency plan exclusion zones that are significantly less than those applied to the Koeberg nuclear power station. Eskom is thus confident that a nuclear emergency plan is viable. However, in all the public participation interventions, Eskom has made it clear that the decision regarding the nuclear emergency plan rests with the National Nuclear Regulator (NNR).

The NNR will evaluate the safety aspects of the proposed nuclear power station once the vendor has been identified. The NNR will also determine the size of the exclusions zones and the emergency plans that are required for the proposed nuclear power station. The NNR will not issue a nuclear licence if there is doubt regarding the safety of the station and the viability of a nuclear emergency plan.

(vii) The moving dunes are driven by water not by the wind and this has not been addressed in the EIA, which is thus fatally flawed

A detailed Dune Geomorphology report has been compiled in which the issues raised are discussed in detail. In a further addendum to the report the specialist study investigates alleged debris flows and debris flow deposits in the Sand River, quick sands and liquefaction of sand, the November 2007 flood that damaged the R330 at St Francis Bay Village and potential for flood damage where the R330 crosses the Sand River. These issues were raised at a key stakeholder workshop held at St. Francis Bay on 25 May 2010 as part of the EIA for the proposed nuclear power station. The specialist assessment concluded on these issues as follows:

- There are no debris flows or debris flow deposits in the Sand River. There are no other environmental conditions in the Cape St. Francis area that are conducive to the formation of debris flows. Thus debris flows cannot pose a threat to a possible nuclear power station and its associated infrastructure at the Thyspunt site.
- Quick sands often occur in the mobile dunes of the Oyster Bay dunefield. They are usually formed when loosely consolidated sand is inundated. Vehicles would not be engulfed in quick sands in the Oyster Bay dunefield unless they drive on the bed of the Sand River or around interdune ponds. Vehicles travelling on the R330 are not in any danger of being engulfed in quick sands. The proposed "eastern access route" that would cross vegetated dunes and wetlands would be built to correct engineering specifications to accommodate any poor foundation conditions so that vehicles can safely use the road. The possible nuclear power station would be founded on solid rock and so quick sands or liquefaction of sand could not have any effect on it.

- The November 2007 flood that damaged the R330 is estimated to be a 1:200 year event that was exacerbated by high rainfall in the period before the flood and the recent removal of alien vegetation in the catchment that caused an increase in groundwater level, so infiltration was reduced and runoff increased proportionally. There was a fire in the catchment in early November 2007 which would have further reduced infiltration rates and increased runoff. The main erosional damage resulted from erosion of sediments by floodwaters flowing down the steep V-drain along the R330. Damage was also caused by the deposition of sediment in the area from the R330 along Lyme Road into the adjacent part of the St. Francis Bay Golf Course. The deposit is an alluvial fan, not a debris flow deposit.
- Proposed improvements to storm water drainage were proposed that would considerably reduce the chances of such damage occurring again. Some of these proposals have already been undertaken.
- The R330 has been damaged since 1996 by some of the numerous floods of the Sand River but damage was minor in that vehicular access was never interrupted. It is recommended that:
    - The wing walls on either side of the culvert be repaired;
    - Road engineers should check what flood recurrence interval the culvert can handle, and improvements should be made if necessary;
    - The culvert should be checked regularly to see that it is not blocked by sand;
    - The culvert should be checked during floods and any debris that is caught across it should be removed.

(viii) The exclusion of the nuclear safety aspects (NNR mandate) is a fatal flaw

South African legislation mandates nuclear and radiological safety considerations to the National Nuclear Regulator and environmental considerations to the relevant Environmental Authorities. There is some overlap in responsibilities and hence the NNR and the Environmental Authorities signed a cooperative agreement to govern their respective responsibilities with regard to radiological impacts on the environment. The exclusion of the detailed assessment of nuclear safety aspects from the EIA is thus in keeping with South African legislation. The NNR licensing process, during which nuclear safety aspects will be considered in detail, also provides for public hearings.

(ix) ***The unwillingness of the consultants to supply documents to the Sea Vista Forum in Xhosa and Afrikaans or to provide them with an independent translator. The Sea Vista Forum currently has the Centre for Environmental Rights acting as their legal advisor***

The complexity, technical nature and length of EIA's make it impractical to provide the full report in more than one language. However the project addressed this issue by providing Afrikaans and Xhosa versions of the executive summary. In addition, during the public participation meetings in Sea Vista all the information was translated into Afrikaans and Xhosa.

Subsequent to concerns being raised during the public meetings held in May last year several interventions have taken place. A second public meeting was held with the Sea Vista community and included relevant specialists who could directly respond to the community's questions. The community made a request, and Eskom arranged for representatives of the community, including the Sea Vista Forum, to visit Koeberg nuclear power station.

A meeting was held with the community and their legal representatives to discuss an appropriate means to communicate the content of the Revised Draft Environmental Impact Report. It was agreed at this meeting that in addition to the overall executive summary being translated into Afrikaans and Xhosa, it would be extended to provide more information. Further, all the specialist study executive summaries would be translated into Afrikaans and Xhosa.

(x) ***There is a complete lack of definitive information on whether adequate engineering solutions are available to avoid serious negative impacts on groundwater flows and sensitive wetlands at Thyspunt. In a water scarce area, compromising groundwater is not a risk to be taken***

The Thyspunt site has very sensitive and unique wetlands which will be situated close to the proposed footprint of the proposed nuclear power plant. The specialist raised the potential impact of drawdown during construction which could result in drying out of the wetland and therefore its permanent destruction. Extensive groundwater monitoring has been carried out on site over the past two years. The Geohydrologist stated in one of the EIA Focus Group meetings, where the Thyspunt Alliance was present, that "I have never carried out such a detailed assessment for an EIA and I believe that this is one of the most comprehensive groundwater studies carried out on one site in South Africa".

In the EIA this aspect, the potential impact of drawdown during construction, was identified, and was covered extensively in the specialist study. The specialist study report included a recommendation for further investigations to confirm the assumptions that had been taken into account in the studies. The ground water monitoring study was expanded to include the requirements of the wetland specialist.

The specialist will be involved in these additional studies. However, initial results that have already been obtained indicate that the original assumptions that the potential destruction of the wetland can be mitigated are accurate.

(xi) The Thyspunt Alliance requested an additional 90 day extension to the comment period. We believe this request is reasonable given the magnitude of what is at stake. Arcus Gibb/Eskom only granted us a 21 day extension and they are not willing to concede that they will have to amend their report and make it available for comment again

In terms of the EIA regulations a 30 day comment period is standard practice, for a more complex study such as this, 45 days is recommended. Originally a 66 day comment period was provided. Based on the request from the public this was extended by 21 days to 87 days. Subsequent to this letter being received an extra 30 days has been granted and the EAP has committed to release the Draft Report again for a further 45 days comment.

(xii) Eskom procurement of property at the three sites under investigation

Eskom owns approximately 85% of the Thyspunt site, based on a 2 km owner controlled boundary around the envisaged footprint of the station. The remainder is privately owned. Eskom is in negotiations with the landowners to acquire the remaining portions within the 2 km radius and the remainder of the property for the Western and Eastern access roads.

Eskom currently owns 50% of the Bantamsklip site, based on a 2 km owner controlled boundary around the envisaged footprint of the station. The balance is predominantly owned by the state with a small portion privately owned.

Eskom owns the complete Koeberg site, including the portion known as Duynefontein.

3. ISSUES RAISED DURING THE SELECT COMMITTEE OVERSIGHT PROGRAMME MEETINGS

In this section, issues raised or comments made during the visit of the Select Committee are shown in bold italic font, with the Eskom response following in normal font:

(i) The Kouga area is declared a water disaster area; it is possible that there will not be sufficient water for additional residents coming into the area

The social impact assessment report addresses this concern. Further discussions are required with the local authorities if and when the project is approved in order to clarify the partnership with local authorities to enhance/expand the infrastructure requirements.

A desalination plant is included in the scope of the proposed project that will meet the water requirements for the proposed nuclear power station and its associated infrastructure during the construction phase and later during the operation phase.

(ii) Eskom has not approach the Municipality/ Local authorities on the Project as yet

This will be done on a preliminary basis subject to approval of the project

(iii) The NNR has not received an application yet. NNR licensing kicks off only when an application has been received

An application to the NNR can only be submitted when the project is approved and the vendor for the proposed nuclear power station has been decided

(iv) Was the community involved in the feasibility studies

Public participation interventions have taken place since the nuclear siting studies undertaken in the 1990s – refer section 1.3 above

(v) How will the community in the area benefit and will the project assist in making the area economically stable/sustainable

The social and economic impact specialist studies addressed this issue. With respect to micro-economic impacts, it was concluded that the Eastern Cape economy

would derive greater benefit (than for example the Western Cape) from the construction and operation of the proposed power station.

(vi) We have known about this project for more than 10 years - has training of local people taken place, are their bursaries given and how many people in this area have been trained

Training can only commence once the project has been approved. It is Eskom's practice to include training requirements into the contracts with the vendors. This will also be done for the proposed nuclear power station, once authorisation has been given to commence negotiations with potential suppliers.

(vii) How will we ensure jobs for locals and how will we control this

This will form part of the contract negotiations with the specific vendor if the project is approved. Eskom will endeavour to negotiate for local workers to be employed by the contractors where possible. The training and up-skilling of people will also from part of the contract conditions

(viii) What property was purchased from Kouga municipality and how much did Eskom pay for this

Eskom has not purchased any property from the Kouga municipality for the proposed power station and associated infrastructure at Thyspunt.

(ix) Is the size of the property owned by Eskom 4000 hectares

The size of the property at Thyspunt is about 2900 ha

(x) How many EIA's are Eskom busy with and at what stage are they

EIA for the proposed nuclear power station on one site (of the three under investigation) – refer section 1.2 a) above

EIAs for the transmission lines and infrastructure – at each of the three site respectively – refer section 1.2 b) above

EIA for a proposed 132 kV distribution line at the Thyspunt site – refer section 1.2 c) above

*(xi) **Local services in this area are very limited and not sufficient for the area. For example, schools, hospitals, water, roads. How will this be addressed by Eskom and the authorities with the increased influx of people?***

The social impact assessment of the EIA addresses and discuss these issues. However, further discussions are required with local authorities to pave the way for partnerships on expanding infrastructure subject to the approval of the project.

*(xii) **I have a 2008 report which stipulates that Thyspunt is the preferred site for Eskom. Eskom is pre-empting the decisions before they are made.***

The report referred to was written by Eskom Transmission Department. It is a study of the national transmission network and the integration of nuclear power stations in the future into the national network. From a transmission integration perspective and stability of the national network, the preference is to have the first nuclear power station constructed in the Eastern Cape, hence the indication that Thyspunt is the preferred site. From a seismic perspective, Thyspunt is also the preferred site. However the EIA process is intended to take into account a range of issues, including various physical and social environmental impact considerations, the needs of the national electricity supply system and other aspects in deciding a recommended site.

*(xiii) **If no decision has been taken why is Eskom buying land***

Eskom continues to buy land both at Thyspunt and Bantamsklip. Land in the coastal areas is scarce, and if available is very expense. The purchase of land by Eskom is thus a strategic decision to maintain the viability of the sites that are potentially suitable for a future nuclear power station. This is in line with the South African Nuclear Energy Policy that recognises the scarcity of suitable land.

*(xiv) **Why continue with the current EIA if no decision has been made***

The EIA is part of the preparatory work required for decision making.

4. ISSUES RAISED BY MR HILTON THORPE ON BEHALF OF THE THYSPUNT ALLIANCE AFTER THE SELECT COMMITTEE OVERSIGHT PROGRAMME MEETINGS

In this section, issues raised or comments made are shown in bold italic font, with the Eskom response following in normal font:

(i) Which technology will be used: Generation 11 or Generation 111?

The technology has been decided – nuclear power station, pressurized water reactor technology (reference Nuclear Energy Policy of South Africa). The vendor, and hence the specific design of PWR has not yet been decided.

There is no clear cut distinction between Generation II and Generation III nuclear power stations. Many Generation II nuclear power stations (such as Koeberg) have been upgraded to meet modern nuclear safety standards and are thus, from a nuclear safety standards perspective, in many respects equivalent to Generation III nuclear power stations.

The decision on the specific PWR design will only be made once authorisation to commence negotiations with potential vendors has been given.

(ii) Government has indicated that Generation 111 is not affordable, but there are still rumours that it will be Generation 111. When can we expect a final announcement on this?

Apart from approving an Integrated Resource Plan, Government will also need to make decisions on the procurement processes for future power stations, whether nuclear, renewable or other. Eskom is not in a position to determine when Government will make any announcements.

(iii) Has any Nuclear Regulator anywhere in the world approved the EU Requirements (EUR) for Generation 111?

The EUR is a specifications document drawn up by electricity utilities to give guidance to designers and vendors on the expectations of the utilities. It is thus not a document that is approved by Regulatory Authorities.

(iv) Why has Eskom proceeded with an EIA before it knew which technology it was to use, and before it had established the viability of the site for that technology?

The technology has been decided – nuclear power station, pressurized water reactor technology (reference Nuclear Energy Policy of South Africa). The vendor, and hence the

specific design of PWR has not yet been decided. Since the EIA process is part of the decision making process, it is standard practice to commence the EIA process prior to the design being finalised.

(v) If Generation 11 is to be used, is it confirmed that the current EIA will be null and void

The EIA was conducted based on a set of enveloping parameters for the proposed nuclear power station. These enveloping parameters cater for the designs of modern nuclear power stations that are available in the world today. When the procurement negotiations commence, the potential vendors will be informed of the EIA and will have to take that into account when preparing their respective bids.

(vi) If this is the case, why has the current EIA not been discontinued, and why is Eskom buying up land around Thyspunt?

It is not the case. The EIA is part of the decision making process and hence has continued.

Eskom continues to buy land both at Thyspunt and Bantamsklip. Land in the coastal areas is scarce, and if available is very expense. The purchase of land by Eskom is thus a strategic decision to maintain the viability of the sites that are potentially suitable for a future nuclear power station. This is in line with the South African Nuclear Energy Policy that recognises the scarcity of suitable land.

(vii) Does Eskom care at all about the viability of the site in terms of evacuation requirements?

Yes – Eskom places high importance on the safety of people – members of the public, Eskom employees and contractors – and thus on the need for contingency plans to cater for the unexpected. In addition the National Nuclear Regulator will not grant a nuclear installation licence unless a viable nuclear emergency plan is demonstrated.

(viii) What steps will be taken to ascertain the real holiday population of the Greater St Francis area, and whether this conforms to NNR requirements?

This has already formed part of the social impact studies and, if authorisation is given to proceed with negotiations with potential vendors, will be enhanced through the safety studies required for the application to the NNR for a nuclear installation licence

(ix) When considering the viability of a site, does the NNR restrict itself to population distribution only, or does it consider additional factors, such as wind speed and direction, escape routes, affected communities, etc.?

The NNR considers both the design of the power station as well as the site parameters and the characteristics of the environs.

(x) What steps has Eskom taken to investigate alternative sites, as is required by the EIA process, and in view of the risk to Thyspunt?

In particular, has it considered possible sites between Port Elizabeth and East London, following the removal of the security risk posed by Ciskei under apartheid rule?

Alternatives are discussed in detail in the scoping and environmental impact reports. In terms of the EIA regulations, alternatives must be reasonable and feasible for the specific application under consideration.

(xi) The EIA has been undertaken in the absence of identification of a specific technology. This has been justified in terms of a "blanket authorization" with which the specific technology will have to conform. Why can the NNR not proceed on a similar basis?

The technology has been decided – nuclear power station, pressurized water reactor technology (reference Nuclear Energy Policy of South Africa). The vendor, and hence the specific design of PWR has not yet been decided.

The nature of an EIA is such that it can be conducted based on a set of enveloping parameters for the proposed activity. This is not true for the NNR safety evaluation which required a detailed design description of each safety component in the power station. The formal NNR licensing process can thus only commence once the vendor and the specific design has been selected through a procurement process. This is subject to authorisation to proceed with the procurement process.

(xii) What will happen if the NNR concludes that the Thyspunt site is not viable?

The NNR takes into account the power station design, the site parameters and the characteristics of the environs. The NNR may require modifications to the design or operation of the proposed power station to ensure that all their requirements are met. The NNR will not issue a nuclear installation license if their requirements cannot be met .

(xiii) Will the EIA be halted until such time as the specific technology has been identified, and the NNR has determined viability in terms of this technology?

The technology has been decided – nuclear power station, pressurized water reactor technology (reference Nuclear Energy Policy of South Africa). The vendor, and hence the specific design of PWR has not yet been decided.

The EIA is part of the decision making process and will continue.

As indicated repeatedly in public forums and in EIA documentation, the separation between the EIA process and the NNR licensing process is based on the legislative provisions of the relevant Acts, namely the National Environmental Management Act, 1998 and the National Nuclear Regulator Act, 1999, as well as the DEA / NNR co-operative agreement that governs the consideration of radiological issues in EIA processes.

The granting of a positive environmental authorisation does not preclude the requirement for a nuclear installation licence and vice versa.