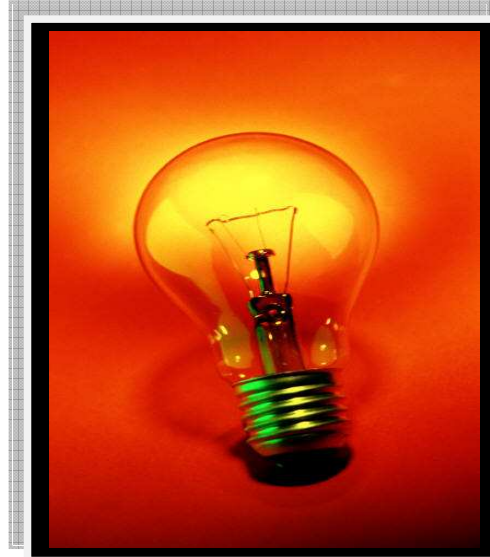
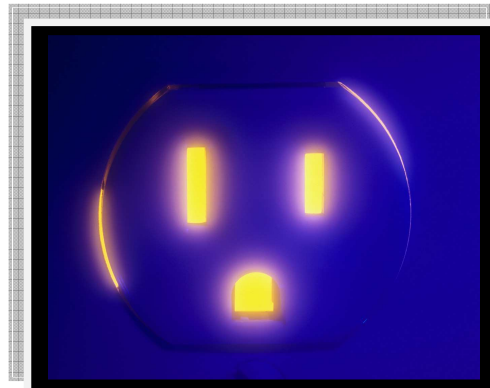
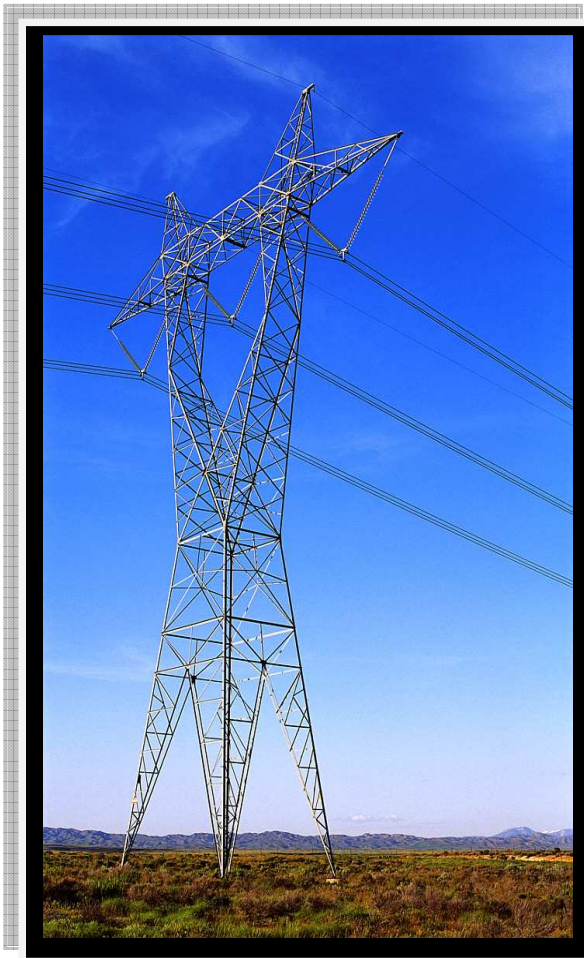


**NUCLEAR 1 ENVIRONMENTAL IMPACT  
ASSESSMENT AND ENVIRONMENTAL  
MANAGEMENT PROGRAMME**

**SPECIALIST STUDY  
FOR SCOPING REPORT**



**SPECIALIST STUDY: ECONOMICS**

J27035

OCTOBER 2007

**NUCLEAR 1 ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL  
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## 1 EXECUTIVE SUMMARY

1. Economic growth and social needs in South Africa are resulting in substantially greater energy demand, and there is a requirement for more than 40,000 megawatts (MW) of new electricity generating capacity over the next 20 years.
2. This study covers the construction and operation of a conventional nuclear power station and associated infrastructure in the Eastern, Northern or Western Cape areas.
3. Based on various social, economic and environmental criteria the following potential sites have been identified:
  - Thuyspunt (Eastern Cape, located west of Port Elizabeth near Cape St Francis)
  - Bantamsklip (Western Cape, located 10 km south-east of Pearly Beach)
  - Duynefontein (Western Cape, located adjacent to the existing Koeberg Power Station, Cape Town)
  - Brazil (Northern Cape, located in the Kleinsee/Port Nolloth area)
  - Schulpfontein (Northern Cape, located in the Hondeklipbaai/Kleinsee area)
4. The primary objective of this study is to measure the nature and magnitude of the economic and socio-economic impacts emanating from the construction of nuclear power stations at these sites.
5. The focus of this preliminary scoping report is on comparing the various sites in terms of the different cost implications of each as well as the positive and negative development impacts, based on a preliminary desktop evaluation. However, any conclusions drawn are subject to possible significant changes after the full economic and impact assessments have been conducted.
6. The following summary table provides a very broad subjective indication of the relative performance in terms of the various issues identified. The impacts are categorised as “good” (positive net effect), “neutral” or “bad” (negative net effect).

|                      | <b>Direct cost implications</b> | <b>Positive development impacts</b> | <b>Negative development impacts</b> |
|----------------------|---------------------------------|-------------------------------------|-------------------------------------|
| <b>Thuyspunt</b>     | Good                            | Neutral                             | Bad                                 |
| <b>Bantamsklip</b>   | Neutral                         | Neutral                             | Bad                                 |
| <b>Duynefontein</b>  | Good                            | Good                                | Neutral                             |
| <b>Schulpfontein</b> | Bad                             | Bad                                 | Neutral                             |
| <b>Brazil</b>        | Bad                             | Bad                                 | Neutral                             |

7. From the table above it appears that the Duynefontein site performs better than the other sites. Thuyspunt would appear to run second; it is an established tourist growth point and a high-potential agricultural area which makes it much less attractive than the Duynefontein site for a controversial project such as a nuclear power station. Schulpfontein and Brazil suffer identical cost and development problems in terms of their suitability as potential sites, and emerge as the least suitable sites, although

tourism impacts could be positive. Bantamsklip is a neutral site with no overriding positive or negative development and cost impacts.

8. These conclusions are not formed on the basis of detailed macroeconomic impact assessments, but are based purely on qualitative analyses. Formal studies will be conducted later to provide more definitive insights into the suitability of each site.

## 2 INTRODUCTION

### 2.1 Description of Proposed Project

Economic growth and social needs in South Africa are resulting in substantially greater energy demand, and there is a requirement for more than 40,000 megawatts (MW) of new electricity generating capacity over the next 20 years. This additional generating capacity could come from a variety of energy sources, for example, coal, liquid fuels, gas turbines, natural gas, uranium (nuclear), hydro and pumped storage schemes, wind and solar energy.

The Environmental Impact Assessment covers the construction and operation of a conventional nuclear power station and associated infrastructure in the Eastern, Northern or Western Cape areas. Large nuclear power stations, such as the Koeberg type, do not need to be close to the source of their fuel (uranium), and are therefore ideally located at the coast to use sea water for cooling. Such stations do, however, require specific geological conditions for safety reasons, and licensing authorities require population and infrastructure management to be in place for effective emergency planning. Thus, any nuclear power project is bound to be controversial.

Based on various social, economic and environmental criteria the following potential sites have been identified:

- Thuyspunt (Eastern Cape, located west of Port Elizabeth near Cape St Francis)
- Bantamsklip (Western Cape, located 10 km south-east of Pearly Beach)
- Duynfontein (Western Cape, located adjacent to the existing Koeberg Power Station, Cape Town)
- Brazil (Northern Cape, located in the Kleinsee/Port Nolloth area)
- Schulpfontein (Northern Cape, located in the Hondeklipbaai/Kleinsee area)

The primary objective of this study will be to measure the nature and magnitude of the economic and socio-economic impacts emanating from the increased production activities in the Eastern Cape, Northern Cape or Western Cape due to the construction of the nuclear power stations. The macroeconomic impacts emanating from the construction and operation of the nuclear power station will consist of three types, namely: direct, indirect and induced. These impacts focus on all direct and backward linkages associated with the proposed nuclear station. However, for purposes of this assessment, certain forward linkages (upstream industries) emanating from the need to utilise the outputs from the power station will also be measured. Backward linkages occur when a power station purchases inputs from other firms, forward linkages when it sells its output to other firms.

In order to measure all the economic impacts associated with the construction and operational phases of this project, a partial general macroeconomic equilibrium analysis will be performed, based on four Social Accounting Matrices (SAM) developed by Conningarth Economists:

- The national SAM for the South African economy for 2004.
- The regional SAM for the Eastern Cape for 2004.
- The regional SAM for the Northern Cape for 2004.
- The regional SAM for the Western Cape for 2004.

A partial general equilibrium analysis is used to determine the nature and magnitude of the macroeconomic impacts that emanate from the project in terms of larger macroeconomic aggregates such as gross domestic product (GDP), employment creation, investment, household income and expenditure, etc. This analysis will be based on SAMs that have been transformed into a macro-econometric model. The focus of the assessment will be on the contribution of the proposed investment on the economy of the relevant area (Eastern Cape, Northern Cape or Western Cape) and the rest of South Africa.

## 2.2 Terms of Reference

The study programme as advised by ARCUS GIBB was divided into three phases but is now to consist of only two, namely:

- Scoping Report
- Economic Impact Report

### Phase 1 - Scoping Report

The consultants have been requested to follow a template provided by ARCUS GIBB for the specialist studies. This template has been adapted for the particular circumstances of the economic study. This report will deal in broad terms with the issues, risks and sensitivities concerned with a nuclear power station from an economic impact point of view. It will also consist of a scoping exercise which will include a comprehensive literature review. However, the main focus will be on the issues raised in public meetings as well as on issues that might be raised by the consultants during their desktop work.

The Scoping Report will also examine the location of the major power demand in relation to each of the five sites, and indicate where the main economic impacts are likely to arise. This will provide a picture of where each power station site fits into the South African economy, and the likely impact it will have on the both the overall economy and the regional economies.

However, because the economic impact specialist study was commissioned at a very late stage, the Scoping Report is of a preliminary nature and gives a status quo picture of economic activities in the area. It consists of desktop research supplemented by data collected during a brief reconnaissance trip to three sites (for budgetary and time reasons all five sites could not be visited).

### Phase 2 – Economic Impact Report

The SAM for the required region will be used as the basis for the general economic equilibrium analysis that will be used to quantify the 'direct', 'indirect' and 'induced' impacts resulting from the construction and operation of the power station. In addition, the national SAM for South Africa (previously developed by Conningarth Economists) will be employed to determine the total national impacts emanating from the proposed project.

### 3 BACKGROUND

#### 3.1 Methodology

As mentioned in Section 2.1, a partial general equilibrium analysis will be used to determine the nature and magnitude of the macroeconomic impacts that emanate from the project. This analysis will be based on a Social Accounting Matrix (SAM) which is a comprehensive, economy-wide database that contains information about the flow of resources that takes place between the different economic agents within an economy (i.e., business enterprises, households, government, etc) during a given period of time – usually one calendar year.

When economic agents in an economy are involved in transactions, financial resources change hands. A SAM provides a complete database of all transactions that take place between these agents in a given period, thereby presenting a “snapshot” of the structure of the economy for that time period. As a system for organising information, a SAM represents a powerful tool in terms of which the economy can be described in a complete and consistent way:

- complete in the sense that it provides a comprehensive accounting of all economic transactions for the entity being represented (i.e. country, region/province, city, etc.), and
- consistent in that all incomes and expenditures are matched

The model can be used to quantify the probable impact on the economy of a new infrastructural project such as a power station, and both the construction phase and the operational part will be modelled.

The development of the SAM is very significant as it provides a framework in which the activities of all economic agents are accentuated and prominently distinguished. By combining these agents into meaningful groups, the SAM makes it possible to clearly distinguish between groups, to research the effects of interaction between groups, and to measure the economic welfare of each group. There are two key reasons for compiling a SAM: (i) it provides a framework for organising information about the economic and social structure of a particular geographical entity (i.e. a country, region or province) for a particular time period (usually one calendar year), and (ii) it provides a database that can be used by any one of a number of different macroeconomic modelling tools for evaluating the impact of different economic decisions and/or economic development programmes.

Because the SAM is a comprehensive, disaggregated, consistent, and complete data system of economic entities that captures the interdependence that exists within a socio-economic system, it can be used as a conceptual framework for exploring the impact of exogenous changes in such variables as exports, certain categories of government expenditure, and investment on the entire, interdependent socio-economic system. The SAM, because of its finer disaggregation of private household expenditure into relatively homogenous social-economic categories that are recognisable for policy purposes, has been used to explore issues related to income distribution.

The SAM's main contribution in the field of economic policy planning and impact analysis is divided into two categories:

- (i) As a primary source of economic information – being a detailed and integrated national and regional accounting framework consistent with officially published socio-economic data, a SAM instantly projects a

- picture of the nature of a country's or region's economy. It lends itself to both descriptive and structural analysis.
- (ii) As a planning tool – due to its mathematical/statistical underpinnings, it can be transformed into a macro-econometric model that can be used to:
- ❑ conduct economic forecasting exercises/scenario building
  - ❑ conduct economic impact analysis both for policy adjustments at a national and provincial level, and for project evaluation
  - ❑ conduct self-sufficiency analysis (i.e., gap analysis to determine, with the help of the inter-industry and commodity flows contained in the provincial SAM, where possible investment opportunities exist), and
  - ❑ calculate the inflationary impacts on provincial level of price changes instigated at national level (i.e., administered prices, VAT, etc.).

The SAM mechanism provides a universally acceptable framework within which the economic impact of development projects and policy adjustments can be reviewed and assessed both at national and provincial/regional levels.

### 3.2 Application to Eskom Study

The **direct** impacts of a nuclear power station relate to those effects occurring in the electricity sector, while the **indirect** impacts refer to those effects occurring in the different economic sectors that link backwards to this sector due to the supply of intermediate inputs. The **induced** impact refers to the chain reaction triggered by the salaries and profits (less retained earnings) that are paid to people employed at a power station and in the economic sectors supplying intermediate inputs, and that are ploughed back into the broader economy in the form of private consumer spending.

The economic impacts of a power station consist of a 'construction' and an 'operational' phase. The construction phase lasts for a limited period (generally two to three years), whereas the operational phase is an ongoing process that is normally analysed over the life of the project, usually a period of 20 years. To enable the calculation of an average annual impact, the impact of the construction phase is spread over the total analysis period so that it relates to the operational phase.

In addition, for purposes of this assessment, certain forward linkages (upstream industries) emanating from the need to utilise the outputs from a power station will also be measured. This exercise will be done in close cooperation with the main stakeholder in the process, i.e., Eskom, who will have to provide detailed information of the upstream industries that may be established due to their increased outputs.

Impact analysis will be undertaken according to the following standard economic performance criteria, and the results will be presented under the following headings:

- Impact on gross domestic product (GDP).
- Capital utilisation.
- Employment impact.
- Skilled labourers.
- Semi-skilled labourers.

- Unskilled labourers.
- Impact on the poor (low-income households).
- Impact on all other households.
- Fiscal impacts.
- Balance of payment impacts.
- Social impacts.
- Efficiency criteria.

The following is a brief overview of the definition of each of these indicators.

- Impact on gross domestic product (GDP): This reflects the magnitude of the value added to the South African as well as the relevant provincial (Eastern Cape, Northern Cape, Western Cape) economy resulting from a new power station. Value added is made up of three elements: remuneration of employees; gross operating surplus (which includes profit and depreciation); and net indirect taxes.
- Impact on capital formation: for an economy to operate at a specific level of activity, investment in capital assets (i.e., buildings, machinery, equipment, etc.) is needed. Capital, labour and entrepreneurship, form the basic factors needed for production in an economy. The effectiveness and efficiency with which these factors are combined influences the overall level of productivity/profitability of production processes, bearing in mind that productivity is affected by an array of factors of which appropriate technology and the skill level of the labour force are two important elements.
- Impact on employment: labour is a key element of the productive process. This study will determine the number of new employment opportunities that will be created by the construction of a nuclear power station. These jobs will be broken down into those created directly at a power station and those indirectly created and induced throughout the broader economy. Furthermore, a distinction will be made between skilled, semi-skilled and unskilled labourers.
- Impact on household income: one of the elements of the additional value-added (i.e., GDP) that will result from the proposed expansion is remuneration of employees, which, in turn, affects household income. The SAM measures the magnitude of changes that will occur both to household income and household spending/saving patterns. As such, this study will highlight the impact of the proposed project on low-income households as this can be used as an indicator of the extent to which this project contributes to poverty alleviation throughout the economy.
- Fiscal impact: the government is affected by large projects via either additional expenditure or subsidies, and the collection of direct and indirect tax revenue. Therefore, it is important to calculate the impact that a project has on government accounts, which is referred to as the fiscal impact. In the case of the construction of a new power station, the national government will not be directly involved in the form of additional government expenditure or subsidies to this project. However, the national fiscus will receive additional income in the form of: property income (in the form of interest, dividends and rent receipts, and the surpluses or deficits of government business enterprises); direct tax (mainly personal tax and company tax); indirect tax (including VAT that

will result from additional household spending, and customs and excise tax); and transfers.

- Impact on the current account of the balance of payments: a new nuclear power station will have direct, indirect and induced impacts on the export and import of goods and services that will take place across all those economic sectors that are affected by this project. Imports consist of direct and indirect material imports as well as goods consumed by households that are imported as a result of the induced impact.
- Social impacts: community services such as hospitals and schools can be positively affected as a result of an increase in government income derived from direct and indirect taxes associated with the proposed expansion. The calculation of these social impacts will be based on a significant number of assumptions related to government expenditure patterns. These social impacts will provide an indication of the socio-economic benefits that may arise from activities in and around a power station due to the increased production activities.
- Effectiveness criteria: the macroeconomic impact of a project is evaluated in terms of effectiveness criteria that measure the extent to which the project utilises resources efficiently. Since capital is a scarce resource in South Africa, the effectiveness of the utilisation of capital in terms of labour (i.e., new jobs) and GDP creation in relation to the total South African economy is used as a measure of economic effectiveness. These criteria are the most reliable indicators as to whether a new power station will be effective or not. In order to make these comparisons, two key multipliers/ratios have been calculated, i.e., the GDP/capital ratio and the labour/capital ratio. Using these ratios, the contribution towards economic growth and job creation relative to the capital employed in the process can be established. If the decision-maker considers continuous, long-term economic growth to be more important than job creation in the short-term, then the GDP/capital ratio is the more important of the two measures of macroeconomic effectiveness. Conversely, if job creation, particularly in the short term, has priority, the labour/capital ratio is more important.

Interviews will be conducted with the relevant departments in the Eastern Cape, Western Cape and Northern Cape provincial administrations (particularly the Department of Economic Affairs, Environment and Tourism), local governments in each of the five sites, and local community and social welfare organisations.

Apart from field interviews, data will be obtained from a variety of sources such as: Statistics South Africa, Development Bank of Southern Africa, the Bureau of Market Research (income and expenditures surveys), and reports and documents of the client as well as national, provincial and local governments and their agencies.

### **3.3 Assumptions and Limitations**

#### **3.3.1 Data Requirements**

In order to maintain the highest degree of accuracy in the results generated by the macroeconomic impact assessment, detailed inputs related to all costs and revenues with the nuclear power station will have to be provided to the consultants. Detailed lists of the input requirements from (i) other specialists in the project team and (ii) Eskom will be prepared and distributed once the full EIR exercise commences.

#### **3.3.2 Process Requirements**

It is foreseen that, before the consultants can commence with the compilation of economic models to measure the macroeconomic effects of the proposed nuclear power stations, a detailed briefing session will be required with other specialists in the project team in an attempt to ascertain the so-called “footprint” of each of the stations. It will be crucial to identify the municipal areas that are encompassed by the “footprint” in each of the areas under investigation. The study area, in terms of its geographic magnitude, is the point of departure of the economic assessment.

Apart from identifying the respective study areas, the expectation is that there will be very close cooperation between the economic team and the two teams responsible for the agriculture and tourism assessments. Only once these two assessments have been finalised by the other consultants can the economic assessment be completed in its entirety, tapping into the findings of the specialists on agriculture and tourism. Close liaison will also need to be maintained with other specialists.

## 4 DESCRIPTION OF THE SITE AND SURROUNDING ENVIRONMENT

In this section a brief description is given of the provincial and municipal economies relevant to each site. The pie charts refer to an area of 7 km x 7 km around each site.

### 4.1 Thuyspunt

This site is located in the Kouga local municipality which forms part of the Cacadu District Municipality. The district municipality covers an area of almost 60,000 sq km in the western portion of the Eastern Cape province. The site is found on the south coast between Oyster Bay and Cape St Francis, 80km west of Port Elizabeth, the largest nearby metropolitan area. Figure 4.1 provides an indication of the sectoral composition of the economy around the Thuyspunt area.

The following local Authorities have been identified as being part of the economic impacted region and will be covered in analysing the economic impacts.

- **Nelson Mandela Bay Metropolitan Municipality.** It is accepted that the Metropole will be a major supplier of goods and services during the construction phase and will therefore be a beneficiary of the process. If Thuyspunt is the site selected, it will also benefit from the electricity produced, especially the Couga industrial development zone (IDZ).
- **Kouga Local Municipality.** This area can benefit during the construction phase with the upgrading of road and other infrastructure, but the possibility exists that the tourism and related industries can suffer because of negative perceptions around nuclear power.
- **Cacadu District Municipality.** The same applies for this local authority as for the Kouga Local Municipality. **The farming area around Oyster Bay, Humansdorp and the Gamtoos Valley could be sensitive.**

Figure 4.1 provides an indication of the economic sectoral composition of the Thuyspunt area.

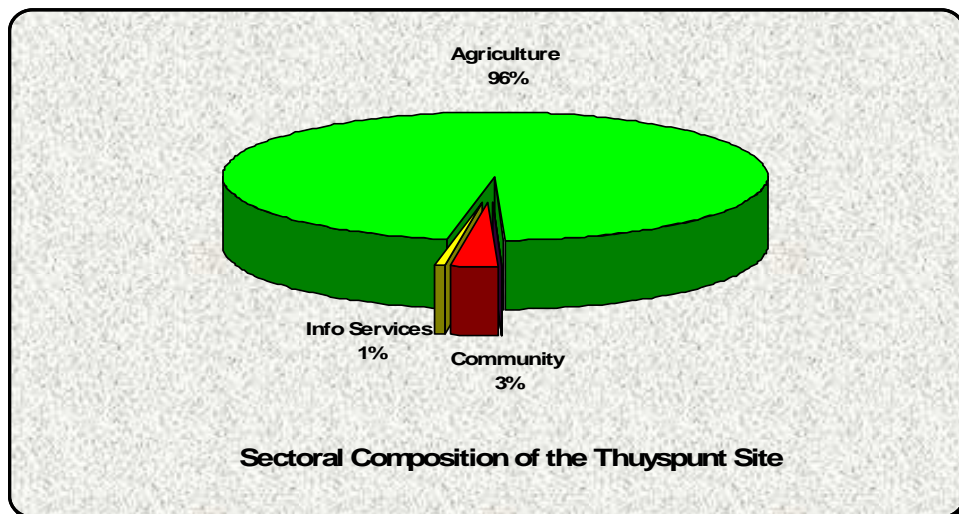


Figure 4.1

The Cacadu area is the third largest economy of the Eastern Cape, and contributes 38 % to the provincial gross geographic product. Its dominant sector is agriculture with secondary sectors including manufacturing and construction.

There are four major drivers of the Oyster Bay/Greater St Francis economy, namely, tourism, agriculture, fishing and construction. Construction itself is a demand derived from other activities, specifically tourism. This further elevates the role of tourism in the economy.

There is a large agricultural industry in the area. This consists mainly of dairy farming with a smaller share of sheep farming. As much as 15% of South Africa's dairy comes from this area. In seasons of surplus, there are exports to other African countries. Dairy farming is estimated to be expanding at more than 10% per annum currently. There are approximately 20,000 dairy cows and about 8,000 sheep in a 30km radius of the plant. This translates into roughly half a million litres of milk a day. Humansdorp, as a district, is the largest producer of milk in the country. In addition, about 500 tons of meat (carcass weight) are produced annually. Beyond this, there is a large amount of agricultural activity which occurs along the Gamtoos River. This is dominated by citrus and other fruit farming.

The dominant fishing activity is squid. The Eastern Cape is the heart of South Africa's squid fishing industry. Of the approximately 150 squid fishing vessels in South Africa, about 40 (27%) operate out of Port St Francis. The chokka from Port St Francis is entirely for export. This is because it is of extremely high quality and is almost free of competition. It therefore receives a very good price on international markets.

There is also a large rock lobster industry in Port St Francis. About 55% (207 tons per year) of the catch comes from Port St Francis. There are also other smaller fishing activities such as long-line hake fishing and pelagic fishing. The harbour is the only privately owned harbour in South Africa, and is currently operating at capacity.

The tourism industry in Cacadu District boasts a variety of cultural, historic, natural and adventure features and, as a part of the internationally renowned Garden Route, the region has potential for significant growth. Closer to the site itself, there are a number of initiatives aimed at eco-tourism. Land owned by the municipality has been converted into conservation areas. There are plans to try and divert traffic along the Garden Route down towards Cape St Francis by branding Cape St Francis as a prime eco-tourism destination. A short distance up the coast, in St Francis Bay, there are more traditional tourism activities where families spend their Christmas holidays. Further North, in Jeffreys Bay, there is a large commercial tourism industry based on the beach and beach activities.

The construction industry is experiencing a very positive demand situation at present and is very upbeat about the immediate future. As of the end of September 2007, roughly 244,000 square metres of additional building space had been approved by the Kouga municipality for the year. Although this covers the whole Kouga municipality, the majority of the approved building plans and square metres fall in Jeffreys Bay, Humansdorp, and St Francis Bay.

According to Statistics South Africa, the Eastern Cape economy recorded a growth rate of 4.8 % in 2005. This was below the country's growth rate of 5.1 %

for the year. The regional GDP of R88,198 million was the fourth largest in the country. The Eastern Cape has a population of approximately 6.9 million persons. The province's main economic activities are finance and business services, manufacturing, and tourism.

## 4.2 Bantamsklip

This site is situated on a coastal plain near Cape Agulhas in the southern region of the Overberg District Municipality. In the 2001 census the population was slightly more than 200,000. The site is some 5 km east of Pearly Beach. Figure 4.2 provides an indication of the sectoral composition of the economy around the Bantamsklip area.

The following local Authorities have been identified as being part of the economic impacted region and will be covered in analysing the economic impacts.

- **Cape Town Metropolitan Municipality.** It is accepted that the Metropole will be a major supplier of goods and services during the construction phase and will therefore be a beneficiary of the process. If Bantamsklip is the site selected, it will also benefit from the electricity produced.
- **Overberg District Municipality.** This area can benefit during the construction phase with the upgrading of road and other infrastructure, but the possibility exists that the tourism and related industries can suffer because of negative perceptions around nuclear power. The farming area covered by the following three local authorities is included.
- **Cape Agulhas Local Municipality and Overstrand Local Municipality.** This area can benefit during the construction phase with the upgrading of road and other infrastructure, but may suffer losses because of negative perceptions around nuclear power.
- **Theewaterskloof.** Although this area is further away from Bantamsklip, it forms a link to Cape Town and is therefore included.

Figure 4.2 provides an indication of the economic sectoral composition of the Bantamsklip area.

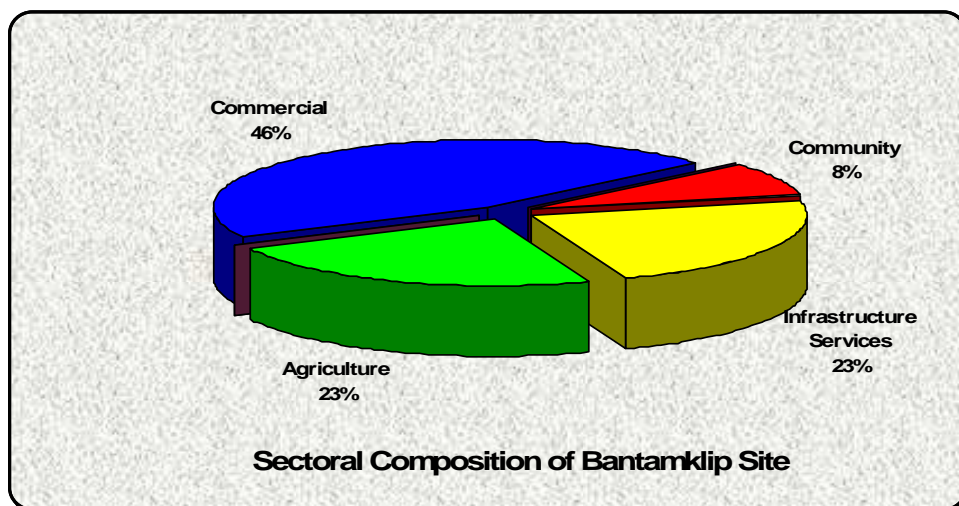


Figure 4.2

Traditionally the area has been dominated by cattle farming and indigenous flower harvesting (both wild field harvesting and cultivated fields). Lately, however, this area developed into the newest wine region of the Cape – The Agulhas wine region. In a half circle of about 25 km around the proposed site several wine estates have been established: Agulhas Wines, Zoetendal, Quoin Rock and the Oystercatcher, with potential for more to develop in the future. The area is deemed to be very good for wine with respect to soil types and climate, and is seen as a refuge from the traditional wine areas in the Western Cape if temperatures keep rising in these areas. Generally, it is expected that the Agulhas Wine Region will be of major importance to the wine industry of the Western Cape.

An interesting feature is that roughly the area from Hermanus in a straight line down to Cape Agulhas, and then bordered by the sea in the south, is gradually becoming a conservation area. It has been suggested that, through public-private agreements, the whole area will eventually become a large open nature reserve. There will still be private farm owners, but their fences will be removed, allowing animals to move freely. There are long-term plans to build a fence along the perimeter, and then around any towns such as Gansbaai. This initiative is being driven by a project which falls under SAN Parks.

Much of the output is exported to Europe, especially from the flower farms. There is a general belief/understanding that by helping the environment/biosphere they are able to fetch higher prices and are able to set themselves apart from other rivals.

Cattle farmers are struggling in the area, and it is commonly thought that most land, presently used for cattle farming will, in the coming two decades, be used for wine farming, eco tourism and conservation.

From Hermanus to Cape Agulhas there are significant tourism activities. Gansbaai is famous both for being the best land-based whale watching spot and a prime location for cage diving to see the Great White Shark. Most boat-operators launch from Kleinbaai on Danger Point Peninsula, and cruise for whales and sharks in the waters off Pearly Beach (including Dyer Island and Geyser Rock, home to 60,000 Cape fur seals and a breeding colony of African penguins).

In line with the move to a conservation area and the increasing environmental awareness in the area, nature-based tourism is strongly gaining importance. There is a high density of nature reserves and fynbos estates amongst them: the 5-star Klein Paradys country House near Pearly Beach, the 5-star Grootbos private Nature Reserve near Gansbaai, and the 4-star farm 215 fynbos reserve between Gansbaai and Elim.

In order to stimulate tourism development in the area, the Western Cape government has decided to tar the road between Gansbaai and Bredasdorp, connecting the Whalecoast to the southernmost tip, Cape Agulhas. The first phase of this project (Bredasdorp to Elim) will be completed in 2008, and the 2nd phase (Elim to Gansbaai) will be completed sometime between 2008 and 2010 (however, as a result of the 2010 Soccer World Cup funding requirements, it seems likely that phase 2 will be delayed). Since tourists have the tendency worldwide to hug the coast as far as possible, it is deemed a fact that (after

completion of this road) most tourists will divert south past Hermanus, Gansbaai and Agulhas to connect to the Garden Route, clearly elevating this area to the level of a prime tourism destination.

The unspoilt Moravian Mission town of Elim (a heritage site) is especially expected to benefit on the basis of tourism as a result of the road being tarred.

Gansbaai and the surrounding areas operate a vibrant fishing industry. The fishing industry is currently producing between R230-300 million p.a. This involves both natural fishing and aquaculture. There is significant fishing in: the pelagic industry (pilchards, sardines, etc.), trawling, line fishing and abalone (however, there is current uncertainty as to the future of abalone fishing following announcements by the Minister of Environmental Affairs and Tourism). There are various other smaller fishing activities as well.

It has been suggested that in the next 7-8 years, there is potential for the industry to grow to as much as R750 million p.a. This is based on certain critical infrastructure being in place. As discussed earlier, the main road between Gansbaai and Bredasdorp is being tarred. This, in conjunction with the commercialisation of the local air force base, is needed for the industry to expand this rapidly.

The industry employs about 1,200 people. There are almost exclusively local small to medium-sized fishing companies running the industry.

According to Statistics South Africa, the Western Cape economy recorded a growth rate of 5.7 % in 2005, the highest in the country. The regional GDP of R164,437 million (at constant 2000 prices) was the third largest in the country.

The Western Cape had a population of approximately 4.65 million persons, and its per capita income was the second highest in the country. The province's main economic activities are finance and business services, manufacturing and tourism. Finance and business services account for 29 % of the provincial GDP (Quantec Research provided by Western Cape Department of Agriculture).

The Western Cape boasts the lowest official unemployment figures in the country. According to the March 2007 Labour Force Survey, the estimated unemployment figure stands at 17.2 %. This is 1.3 percentage points higher than the estimate from March 2006.

### 4.3 Duynefontein

Located near the coast approximately 30km north of Cape Town, this site already contains the Koeberg nuclear power station. The Duynefontein site shares the same provincial information as the Bantamsklip site. Figure 4.3 provides an indication of the sectoral composition of the economy around the Duynefontein area.

The following local authorities have been identified as being part of the economic impacted region and will be covered in analysing the economic impacts.

- **Cape Town Metropolitan Municipality.** It is accepted that the Metropole will be a major supplier of goods and services during the construction phase and will therefore be a beneficiary of the process. **If**

the Duynefontein site is selected, it will also benefit from the electricity produced.

- **Saldanha bay Local Municipality.** Saldanha bay has good infrastructure with a modern port. The possibility exists that, if Duynefontein is selected as the preferred site, it can benefit, especially during the construction phase
- **Swartland District Municipality.** If selected the area can benefit from improved road infrastructure and other services.

Figure 4.3 provides an indication of the economic sectoral composition of the Duynefontein area. The site falls within the Cape Town Metropolitan economy, hence the high degree of diversification.

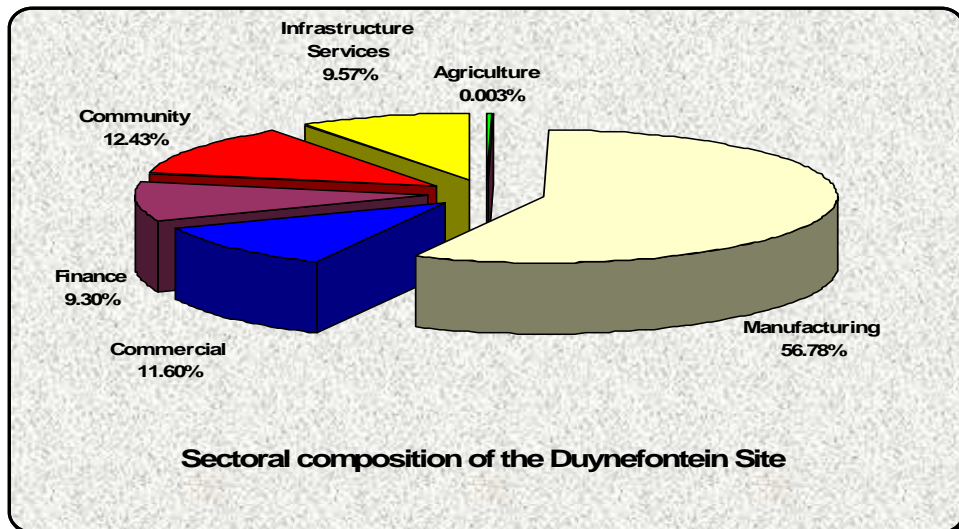


Figure 4.3

According to the department of planning and economic development in the Cape Town Metropolitan Municipality, the only path for Cape Town to grow is north, along the West Coast. There is already very rapid growth along the N7. The department believes that within 10 years development will have reached the southern border of Melkbosstrand, and within a further 10 years it will be in line with the current Koeberg power plant. This area is flat, and the soil is poor for agricultural purposes. This makes this area very favourable for commercial, residential and industrial development. Further east, there are more suitable areas of land for agriculture.

Of the 4.65 million persons living in the Western Cape in 2005, approximately 3 million were found in the City of Cape Town. The population is biased to the south, and it is expected that there will be a gradual movement north as areas then develop.

The City of Cape Town can be divided into several districts. The Duynefontein site falls into the West Coast District. According to the latest municipal reports (2007), the value of commercial and industrial property in the district are R2,033m and R2,762m respectively. This value includes both the value of the land and the buildings on it. There was a low unemployment rate (22.67%) in the district (relative to the country). Of the 106,000 person workforce: 58,000 were employed, 17,000 were unemployed and 31,000 were not economically active (City of Cape Town, 2007: 63).

Closer to the Duynfontein site, the drivers of the Melkbosstrand economy are residential sales. There are a handful of shops and convenience stores. By contrast, there are roughly 15 estate agents. Melkbosstrand is mainly a residential area, with some tourism occurring in December.

#### 4.4 Brazil

This site is in the Namakwa District Municipality in the Northern Cape. It is in a semi-arid area far from large metropolises. Population density in the area is low, and total population is only approximately 110,000. The labour force consists of 41,000 people, of whom 31,500 are employed and 9,500 unemployed. The site is surrounded by several small mining towns, namely, Springbok, Kleinsee, Hondeklipbaai and Port Nolloth. Figure 4.4 provides an indication of the sectoral composition of the economy around the Brazil area.

The following local authorities have been identified as being part of the economic impact region and will be covered in analysing the economic impacts.

- **Garies Local Municipality and Springbok Local Municipality.** Although Garies is some distance away from Brazil, it could benefit if Brazil is selected, especially in terms of employment and upgrading of infrastructure.
- **Namakwa District Municipality.** This area can benefit from improved road infrastructure and other services.

Figure 4.4 provides an indication of the economic sectoral composition of the Brazil area.

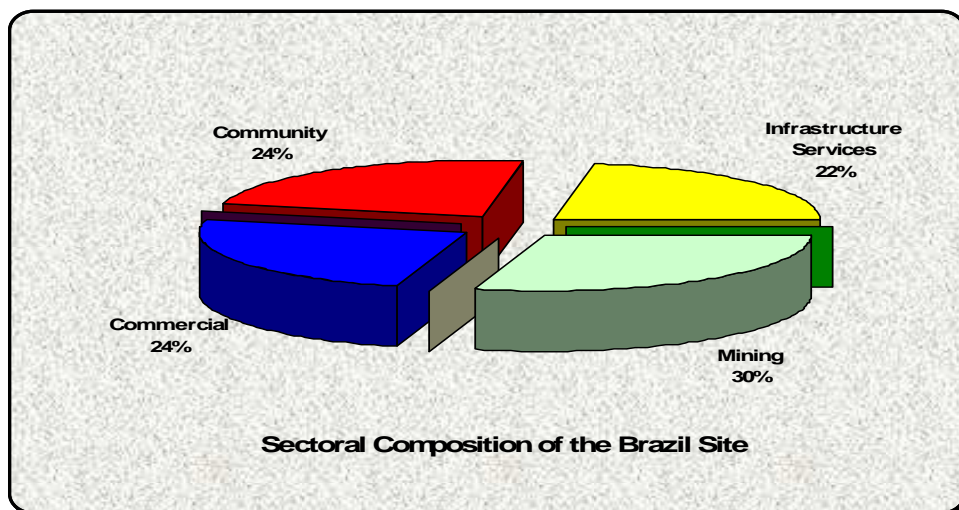


Figure 4.4

According to Statistics South Africa, the Northern Cape economy recorded a growth rate of 3.9 % in 2005. This was below the country's growth rate of 5.1 % for the year. The regional GDP of R23,657 million was the lowest in the country. This is unsurprising as the Northern Cape has the lowest population (approximately 1.1 million persons) and few economic possibilities. The main economic activities are seasonal tourism and mining. The mining and quarrying sector contributes almost 25 % to the provincial GDP.

## 4.5 Schulpfontein

Like Brazil, this site is situated in the Namakwa District Municipality in the Northern Cape. It is just north of Koiingnaas (south of Brazil) and shares the same characteristics as the Brazil site. Figure 4.5 provides an indication of the sectoral composition of the economy around the Schulpfontein area.

The following local authorities have been identified as being part of the economic impact region and will be used in analysing the economic impacts.

- **Garies Local Municipality and Springbok Local Municipality.** Although Garies is some distance away from Brazil, it could benefit if Brazil is selected, especially in terms of employment and upgrading of infrastructure.
- **Namakwa District Municipality.** This area can benefit from improved road infrastructure and other services.

Figure 4.5 provides an indication of the economic sectoral composition of the Schulpfontein area. It can be seen that mining is the overwhelming activity in the vicinity of this site.

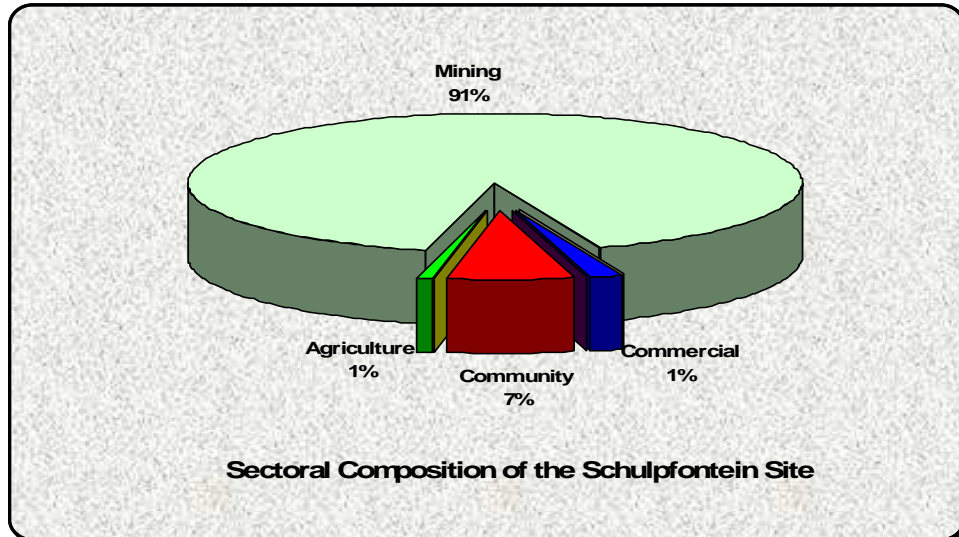


Fig. 4.5

## 5 ECONOMIC INTERACTIONS BETWEEN THE NUCLEAR POWER STATIONS AND THE VARIOUS SITES

### 5.1 Criteria for Site Analysis

The core objective of the national government, as set out in 2004, is to halve poverty and unemployment by 2014. Since 2004, GDP growth has exceeded 4 % per annum, reaching approximately 5 % in 2005. This improvement in the growth rate has been accompanied by accelerated employment creation, although unemployment still remains high at over 26 %. However, this is considerably better than the 32 % unemployment rate reached a few years ago. The target of reducing unemployment to below 15 %, and halving the poverty rate, will not be achieved without effective economic leadership from government and effective partnerships between government and other key stakeholders such as organised labour and business.

In this regard, the economic impact assessment will be structured in such a manner as to determine the magnitude of the project's contribution to GDP and the extent to which unemployment is improved, as per the objectives set out by the government. What are also of critical importance are the effects the proposed developments may have on the environment and on the health of individuals in the area, and their impact relative to alternatives such as coal-fired power stations. It is thus very apparent that the construction and operation of the nuclear power stations will have both positive and negative impacts on the economy. ~~While the generation of additional electricity will have significant positive impacts on the South African economy as a whole and contribute extensively to the core objective of the national government, the nuclear power stations will adversely affect the specific sites where they will be constructed and operated due to the very negative perceptions surrounding the hazards associated with proximity to such facilities.~~

The development economists will consider existing and alternative land used in the site area, with specific reference to agriculture and tourism. They will examine the impact of the proposed nuclear power station on land use. Existing land use will vary from site to site, with impacts on tourism and agriculture perhaps being most important in the Eastern Cape and least important in the Northern Cape. Urban land-use issues would be expected to be most controversial in the Koeberg area. The study will examine broader implications of changes to the environment, e.g., perceptions of threats can be important, a case in point being the perceived threat of radioactivity on tourism.

This section of the report will focus on the following:

- The skills that will be required to operate a nuclear facility, the opportunities that this might present for educational institutions, and the capacity of South Africa to provide the necessary skills.
- The attraction of new investment.
- Health – the study will examine what the potential health implications are to persons who reside and work in the area of the proposed nuclear sites, and how this feeds into overall social welfare.
- Housing – approximately 1,000-1,500 new jobs will be created at a power station, and housing at some sites will have to be provided.
- How income is likely to be distributed once it is generated. This is important for evaluating the effects on unemployment and poverty.

- Although there is a high level of local unemployment, the mere possibility of jobs – following the announcement of a development at one of the proposed sites – is likely to lead to further rural-urban migration (experience in Saldanha indicates that there can be large inward migration following the announcement of large projects.) This, in turn, will lead to an increased demand for municipal and public services such as health, education, electricity, water, sanitation and housing, and could well also lead to an increase in crime. The effect on the municipal operating budget will be examined – this budget relates to infrastructure and services such as water, sanitation, housing and electricity, and the increased demands from more rapid in-migration could lead to a smaller sum being available for other services.
- Informal sector – this sector could grow, e.g., food vendors selling to employees of a power station.
- Local economic development – the study will examine possible development opportunities that may arise as a result of the power station being constructed, and how these affect unemployment and poverty in the local economy.

For many aspects of the qualitative analysis it will be useful to examine the case of Koeberg power station in order to develop an understanding of how nuclear power stations affect their hinterland. For example, it is known that the Koeberg power station directly employs around 1,000 people and indirectly creates around 2,600 jobs in the South African nuclear industry. This information creates a reference that can be compared to estimates in order to verify their validity.

As an interim phase of work certain issues relating to the construction and operation of the nuclear power stations have been identified. The issues were grouped together in three broad categories:

- Direct cost implications of the various sites  
Commerce and industry: need for goods and services (plumbers, electricians, cement, bricks etc.).  
Bulk services: water, roads, electricity.  
Social services: schools, clinics, recreation.  
Skilled labour: additional costs of attracting skilled persons.  
Transport: distance from source of major inputs.  
Connectivity: distance to electricity grid.
- Positive development impacts  
Commerce and industry: possibility for indirect and induced positive impacts  
Informal sector: possible stimulation of second economy.  
Infrastructure: possible future use of new roads, etc.  
Need for economic development in the area.
- Negative development impacts  
Tourism: negative impact on perceptions.  
Property values: negative impact on perceptions.  
Informal sector: security and increased social issues.  
Agriculture: perceived impact of nuclear power generation.

Each issue was considered in terms of its status quo and the interaction that it would have on the nuclear power stations. In terms of these interactions, hypotheses were proposed that will be tested during the scoping phase of the

study. At this stage, it is not possible to ascertain whether the hypotheses will be accepted or rejected.

## 5.2 Project Impacts

Table 5.1 provides a detailed overview of the qualitative analyses conducted for each site. In terms of each issue, each site is judged on the manner in which it will be affected (positively or negatively) by the introduction of a nuclear power station to the area. At this stage, only a very subjective call can be made regarding the manner in which the area will be affected in terms of bulk services, social services, labour requirements and the like (see list above). The affect on the area can be “*good*”, “*neutral*” or “*bad*”. If the area will be positively affected by a nuclear power station’s presence, the impact on the area will be *good*. If no apparent changes will occur in the area, the impact will be *neutral*. However, if the area is adversely affected by the construction and operation of a nuclear power station, the effect on the area will be *bad*. It is reiterated that this very subjective judgement call will have to be substantiated as the project progresses.

Table 5.1 Qualitative Economic Impact Analysis of Each Site

| <b>A. Direct Costs Implications of Construction and Operation of Nuclear Power Station</b>                  |  |   |
|---|--|---|
| <i>A.1 Commerce and Industry: Need for Goods and Services (plumbers, electricians, cement, bricks etc.)</i> |  |   |
| <b>SITE</b>   | <b>STATUS QUO</b>  | <b>INTERACTION</b>  |
| <b>Thuyaspunt</b>   | Close proximity to Nelson Mandela Metropole and the Coega Development Zone– major industrial hub with well-established service providers, especially of transport equipment. | <b>Good</b><br>Easy access to all goods and services that are required – import leakages to other areas are relatively low. |
| <b>Bantamsklip</b>  | Close proximity to Cape Metropole – major industrial hub and well-established service providers.   | <b>Good</b><br>Easy access to all goods and services that are required – import leakages to other areas are relatively low. |
| <b>Duynfontein</b>  | Part of Cape Metropole – major industrial hub and well-established service providers.  | <b>Good</b><br>Easy access to all goods and services that are required – import leakages to other areas relatively low.     |
| <b>Schulfontein</b>   | Underdeveloped commerce and industry sector – far from any major industrial development.   | <b>Bad</b><br>Minimal access to all goods and services that are required – import leakages to other areas high.             |
| <b>Brazil</b>   | Underdeveloped commerce and industry sector – far from any major industrial point.   | <b>Bad</b><br>Minimal access to all goods and services that are required – import leakages to other areas high.             |
| <i>A.2 Bulk Services: Water, Roads and Electricity</i>  |  |   |
| <b>SITE</b>   | <b>STATUS QUO</b>  | <b>INTERACTION</b>  |
| <b>Thuyaspunt</b>   | Easy access to potable and bulk water services. Close to established national road network. Access road to   | <b>Neutral</b><br>Some investment in bulk services  |

|                      |  |  |
|----------------------|--|--|
|                      | site (30 km) will need upgrading. Insufficient availability of electricity may pose a problem.   | envisaged.   |
| <b>Bantamsklip</b>   | Limited access to potable and bulk water services. Some distance to established national road network. Insufficient availability of electricity must be addressed              | <b>Bad</b><br>Major investment in bulk services envisaged    |
| <b>Duynefontein</b>  | Easy access to potable and bulk water services. Close to established national road network. Sufficient availability of electricity.  | <b>Good</b><br>Minimal investment in bulk services envisaged |
| <b>Schulpfontein</b> | Exceedingly limited access to potable and bulk water services. Very remote from established national road network. Insufficient availability of electricity must be addressed  | <b>Bad</b><br>Major investment in bulk services envisaged    |
| <b>Brazil</b>        | Exceedingly limited access to potable and bulk water services. Very remote from established national road network. Insufficient availability of electricity must be addressed. | <b>Bad</b><br>Major investment in bulk services envisaged    |

**A.3 Social Services: Schools, Clinics, Recreation**

| <b>SITE</b>          | <b>STATUS QUO</b>   | <b>INTERACTION</b>  |
|----------------------|---|---|
| <b>Thuyspunt</b>     | All social services well established. Humansdorp is a nearby regional service town and Nelson Mandela Metropole is easy accessible. | <b>Good</b><br>Small investment in social services envisaged. |
| <b>Bantamsklip</b>   | Social services are poorly developed. Bredasdorp is a distant regional service town and Cape Town is +- 200km away.                 | <b>Bad</b><br>Large investment in social services envisaged.  |
| <b>Duynefontein</b>  | Social services well established. It is part of the Cape Metropole.   | <b>Good</b><br>Small investment in social services envisaged. |
| <b>Schulpfontein</b> | Social services are very poorly developed. Springbok is a very distant regional service town but is small.                          | <b>Bad</b><br>Large investment in social services envisaged.  |
| <b>Brazil</b>        | Social services are very poorly developed. Springbok and Garies are very distant regional service towns, and both are small.        | <b>Bad</b><br>Large investment in social services envisaged.  |

**A.4 Skilled Labour: Additional Costs to Attract Skills**

| <b>SITE</b>        | <b>STATUS QUO</b>  | <b>INTERACTION</b>   |
|--------------------|--|--|
| <b>Thuyspunt</b>   | It is considered unlikely that the labour force in Thuyspunt has a large component of highly skilled individuals permanently residing in the area.   | <b>Good</b><br>Given the availability of residential properties and bulk and social services, it is not foreseen that the relocation of skilled persons to the area will be problematic. It is a very sought after living area so that the cost of attracting skilled labour to the site will not exceed standard remuneration packages associated with this type of employment. |
| <b>Bantamsklip</b> | It is considered unlikely that the labour force in Bantamsklip has a large component of highly skilled individuals permanently residing in the area. | <b>Neutral</b><br>It is foreseen that the relocation of skilled persons to the area will be problematic due to lack of bulk and social services. However, once the necessary bulk and social services have been established, attracting skilled labour to the site will not  |

|  |   |   |
|--|---|---|
|  |   | exceed standard remuneration packages associated with this type of employment.  |
| <b>Duynefontein</b>  | It is considered likely that the labour force in Duynefontein has a large component of highly skilled individuals permanently residing in the area due to its proximity to Koeberg. | <b>Good</b><br>It is foreseen the cost of attracting skilled labour to the site will not exceed standard remuneration packages associated with this type of employment.   |
| <b>Schulfontein</b>  | It is considered unlikely that the labour force in Schulfontein has any highly skilled individuals permanently residing in the area.  | <b>Bad</b><br>It is foreseen that the relocation of skilled persons to the area will be problematic due to lack of bulk and social services, and the distances that need to be travelled to any commercial and industrial area. Attracting skilled labour to the site will substantially exceed standard remuneration packages associated with this type of employment. |
| <b>Brazil</b>  | It is considered unlikely that the labour force in Springbok and Garies has any highly skilled individuals permanently residing in the area.  | <b>Bad</b><br>It is foreseen that the relocation of skilled persons to the area will be problematic due to lack of bulk and social services, and the distances that need to be travelled to any commercial and industrial area. Attracting skilled labour to the site will substantially exceed standard remuneration packages associated with this type of employment. |
| <b>A.5 Transport: Distance from Source of Major Inputs</b> |   |   |
| <b>SITE</b>  | <b>STATUS QUO</b>   | <b>INTERACTION</b>  |
| <b>Thuyaspunt</b>  | Close to established national road network as well as the ports at Port Elizabeth and Coega. At this stage, it is still unclear where major inputs will originate.                  | <b>Neutral</b><br>Transportation of major inputs not foreseen to be very problematic.   |
| <b>Bantamsklip</b>   | Close to established national road network. At this stage, it is still unclear where major inputs will originate.   | <b>Neutral</b><br>Transportation of major inputs not foreseen to be very problematic.   |
| <b>Duynefontein</b>  | Close to established national road network and Cape Town port. At this stage, it is still unclear where major inputs will originate.  | <b>Good</b><br>Transportation of major inputs not foreseen to be very problematic.  |
| <b>Schulfontein</b>  | Very remote from established national road network and ports.   | <b>Bad</b><br>Transportation of major inputs foreseen to be very problematic.   |
| <b>Brazil</b>  | Very remote from established national road network and ports.   | <b>Bad</b><br>Transportation of major inputs foreseen to be very problematic.   |
| <b>A.6 Connectivity: Distance to Electricity Grid</b>      |   |   |
| <b>SITE</b>  | <b>STATUS QUO</b>   | <b>INTERACTION</b>  |
| <b>Thuyaspunt</b>  | Relatively close to the national electricity grid.  | <b>Neutral</b><br>Links to the national grid will involve   |

|  |  |  |
|--|--|--|
|  |  | some investment.   |
| <b>Bantamsklip</b>   | Relatively close to the national electricity grid.   | <b>Neutral</b><br>Links to the national grid will involve some investment.   |
| <b>Duynefontein</b>  | Close to the national electricity grid.  | <b>Good</b><br>Links to the national grid will involve little investment.  |
| <b>Schulfontein</b>  | Isolated from the national electricity grid.   | <b>Bad</b><br>Links to the national grid will involve large investment.  |
| <b>Brazil</b>  | Isolated from the national electricity grid.   | <b>Bad</b><br>Links to the national grid will involve large investment.  |
| <b>B. Positive Development Impacts</b>   |  |  |
| <b><i>B.1 Commerce and Industry: Possibility for Indirect and Induced Positive Impacts</i></b> |  |  |
| <b>SITE</b>  | <b>STATUS QUO</b>  | <b>INTERACTION</b>   |
| <b>Thuyspunt</b>   | Easy access to all goods and services – import leakages relative to other potential sites low.   | <b>Good</b><br>It is foreseen that indirect and induced impacts due to the construction and operation of a nuclear power station will be contained within the area.  |
| <b>Bantamsklip</b>   | Access to all goods and services limited.  | <b>Neutral</b><br>It is foreseen that some indirect and induced impacts due to the construction and operation of a nuclear power station will leak from the area.  |
| <b>Duynefontein</b>  | Easy access to all goods and services – import leakages relative to other potential sites low.   | <b>Good</b><br>It is foreseen that indirect and induced impacts due to the construction and operation of a nuclear power station will be contained within the area.  |
| <b>Schulfontein</b>  | Minimal access to all goods and services that are required.  | <b>Bad</b><br>It is foreseen that indirect and induced impacts due to the construction and operation of a nuclear power station will leak from the area.   |
| <b>Brazil</b>  | Minimal access to all goods and services that are required.  | <b>Bad</b><br>It is foreseen that indirect and induced impacts due to the construction and operation of a nuclear power station will leak from the area.   |
| <b><i>B.2 Informal Sector: Possible Stimulation of Second Economy</i></b>                      |  |  |
| <b>SITE</b>  | <b>STATUS QUO</b>  | <b>INTERACTION</b>   |
| <b>Thuyspunt</b>   | The second economy in the area has boomed in recent years due to major influx of individuals from poverty-stricken areas as well as an increase in tourists. | <b>Neutral</b><br>The second economy will grow in tandem with the formal economy in the region. If the formal economy benefits from the construction and operation of a nuclear power station, so will the second economy. |
| <b>Bantamsklip</b>   | It is considered unlikely that the second economy in this  | <b>Neutral</b>   |

|                     |  |  |
|---------------------|--|--|
|                     | region has developed in recent years.  | The second economy will grow in tandem with the formal economy in the region. If the formal economy benefits from the construction and operation of a nuclear power station, so will the second economy.                   |
| <b>Duynefontein</b> | The second economy in the area has boomed in recent years due to major influx of individuals from poverty-stricken areas as well as an increase in tourists. | <b>Neutral</b><br>The second economy will grow in tandem with the formal economy in the region. If the formal economy benefits from the construction and operation of a nuclear power station, so will the second economy. |
| <b>Schulfontein</b> | It is considered unlikely that the second economy in this region has developed.  | <b>Bad</b><br>The second economy will not grow in tandem with the formal economy in the region as it is not attracted to remote areas.   |
| <b>Brazil</b>       | It is considered unlikely that the second economy in this region has developed.  | <b>Bad</b><br>The second economy will not grow in tandem with the formal economy in the region as it is not attracted to remote areas.   |

***B.3 Infrastructure: Possible Future Use of New Roads, etc.***

| <b>SITES</b>        | <b>STATUS QUO</b>  | <b>INTERACTION</b>  |
|---------------------|--|---|
| <b>Thuyaspunt</b>   | Once a nuclear power station becomes operational, access roads to the site will be in a good condition making travelling to and from the area easy.          | <b>Neutral</b><br>Agricultural activities will benefit greatly from the new roads that link Humansdorp to the nuclear site. |
| <b>Bantamsklip</b>  | Once a nuclear power station becomes operational, access roads to the site will be in a good condition making travelling to and from the area easy.          | <b>Neutral</b><br>Agricultural activities will benefit greatly from the new roads that link Bredasdorp to the nuclear site. |
| <b>Duynefontein</b> | It is not foreseen that new roads will be constructed to the site.   | <b>Neutral</b><br>No new benefits envisaged.  |
| <b>Schulfontein</b> | Once a nuclear power station becomes operational, many new access roads to the site will be in a good condition making travelling to and from the area easy. | <b>Good</b><br>Mining activities will benefit from the new roads that will link to the N7 national road.                    |
| <b>Brazil</b>       | Once a nuclear power station becomes operational, many new access roads to the site will be in a good condition making travelling to and from the area easy. | <b>Good</b><br>Mining activities will benefit from the new roads that will link to the N7 national road.                    |

***B.4 Absorptive Capacity for Developmental Growth***

| <b>SITE</b>       | <b>STATUS QUO</b>   | <b>INTERACTION</b>   |
|-------------------|---|--|
| <b>Thuyaspunt</b> | In recent years there has been a large influx of individuals from poverty-stricken areas to the region. | <b>Neutral</b><br>New employment opportunities will be created and social services will be established which will contribute to poverty alleviation, but will be offset by a decline in tourism. |

|                     |   |   |
|---------------------|---|---|
| <b>Bantamsklip</b>  | No apparent influx of individuals from poverty-stricken areas.  | <b>Neutral</b><br>New employment opportunities will be created and social services will be established which will contribute to poverty alleviation for persons currently residing in the area, but will be offset by a decline in tourism. |
| <b>Duynefontein</b> | In recent years there has been a large influx of individuals from poverty-stricken areas to the Cape Metropolitan region. | <b>Good</b><br>New employment opportunities will be created and social services will be established which will contribute to poverty alleviation.   |
| <b>Schulfontein</b> | No apparent influx of individuals from poverty-stricken areas.  | <b>Neutral</b><br>New employment opportunities will be created and social services will be established which will contribute to poverty alleviation for persons currently residing in the area.   |
| <b>Brazil</b>       | No apparent influx of individuals from poverty-stricken areas.  | <b>Neutral</b><br>New employment opportunities will be created and social services will be established which will contribute to poverty alleviation for persons currently residing in the area.   |

C. Negative Development Impacts

*C.1 Tourism: Negative Impact on Perceptions*

| <b>SITE</b>         | <b>STATUS QUO</b>   | <b>INTERACTION</b>  |
|---------------------|---|---|
| <b>Thuyaspunt</b>   | At present, tourism and related facilities are expanding at accelerated pace. One of the economic pillars of the area is its tourism potential. | <b>Bad</b><br>The proposed site is very close to the prime holiday development and will negatively influence perceptions in terms of the suitability of the area for further tourist developments.  |
| <b>Bantamsklip</b>  | At present, tourism and related facilities are expanding at accelerated pace. One of the economic pillars of the area is its tourism potential. | <b>Bad</b><br>The proposed site is very close to the prime holiday developments and will negatively influence perceptions in terms of the suitability of the area for further tourist developments. |
| <b>Duynefontein</b> | There is a nuclear site and residents are used to it.   | <b>Neutral</b><br>It is foreseen that an additional nuclear facility will not influence current perceptions.  |
| <b>Schulfontein</b> | Minimal tourist activities.   | <b>Neutral</b><br>It is foreseen that a nuclear facility will not influence current perceptions.  |
| <b>Brazil</b>       | Minimal tourist activities.   | <b>Neutral</b><br>It is foreseen that a nuclear facility will not influence current perceptions.  |

| <b>C.2 Property Values: Negative Impact on Perceptions</b>       |  |  |
|--|--|--|
| <b>SITE</b>  | <b>STATUS QUO</b>  | <b>INTERACTION</b>   |
| <b>Thuyspunt</b>   | In recent years, the area has been characterised by large residential development, specifically holiday homes. It is also a highly productive agricultural area. | <b>Bad</b><br>There exists a real possibility – especially over the short term – that property values will be affected severely.   |
| <b>Bantamsklip</b>   | In recent years, the area has been characterised by residential development, specifically holiday homes.   | <b>Bad</b><br>There exists a real possibility – especially over the short term – that property values will be affected severely.   |
| <b>Duynefontein</b>  | In recent years, the area has been characterised by large residential development, specifically holiday homes.   | <b>Neutral</b><br>It is foreseen that an additional nuclear facility will not influence current perceptions.   |
| <b>Schulpfontein</b>   | The site is in a restricted mining area and no real property market exists.  | <b>Neutral</b><br>It is foreseen that a nuclear facility will not influence current perceptions.   |
| <b>Brazil</b>  | The site is in a restricted mining area and no real property market exists.  | <b>Neutral</b><br>It is foreseen that a nuclear facility will not influence current perceptions.   |
| <b>C.3 Informal Sector: Security and Increased Social Issues</b> |  |  |
| <b>SITE</b>  | <b>STATUS QUO</b>  | <b>INTERACTION</b>   |
| <b>Thuyspunt</b>   | The second economy in the area has boomed in recent years due to major influx of individuals from poverty-stricken areas as well as an increase in tourists.     | <b>Bad</b><br>Growth in the second economy is associated with increased levels of crime and the increased occurrence of socially related problems.   |
| <b>Bantamsklip</b>   | It is perceived that the second economy in this region has not developed in recent years.  | <b>Bad</b><br>Growth in the second economy, as a result of stimulation of the formal economy by the presence of a power station, is associated with increased levels of crime and the increased occurrence of socially related problems. |
| <b>Duynefontein</b>  | The second economy in the area has boomed in recent years due to major influx of individuals from poverty-stricken areas as well as an increase in tourists.     | <b>Bad</b><br>Growth in the second economy is associated with increased levels of crime and the increased occurrence of socially related problems.   |
| <b>Schulpfontein</b>   | It is considered unlikely that the second economy in this region has developed.  | <b>Neutral</b><br>The site is in a restricted mining area and the influx of people can be controlled.  |
| <b>Brazil</b>  | It is considered unlikely that the second economy in this region has developed.  | <b>Neutral</b><br>The site is in a restricted mining area and the influx of people can be controlled.  |

| <b>C.4 Agriculture: Perceived Impact of Nuclear Power Generation</b> |  |   |
|--|--|---|
| <b>SITE</b>  | <b>STATUS QUO</b>                          | <b>INTERACTION</b>  |
| <b>Thuyspunt</b>   | A highly productive agricultural area.     | <b>Bad</b><br>The possibility exists that a negative perception will prevail.     |
| <b>Bantamsklip</b>   | A marginally productive agricultural area. | <b>Neutral</b><br>The possibility exists that a negative perception will prevail. |
| <b>Duynefontein</b>  | A marginally productive agricultural area. | <b>Neutral</b><br>The possibility exists that a negative perception will prevail. |
| <b>Schulpfontein</b>   | No agricultural activities in the area.    | <b>Neutral</b><br>No influence on agricultural activities.                        |
| <b>Brazil</b>  | No agricultural activities in the area.    | <b>Neutral</b><br>No influence on agricultural activities.                        |

## 6 CONCLUSION

In this section of the report, the focus is on comparing the various sites in terms of the different cost implications of each, as well as the positive and negative development impacts, based on the preliminary desktop evaluation above. However, any conclusions drawn are subject to possible significant changes after the full Environmental Impact Assessment has been conducted. The following summary table provides a very broad indication of the relative performance in terms of the various issues identified.

Table 6.1 Summary of Preliminary Economic Impacts by Site

|                     | <b>Direct cost implications</b> | <b>Positive development impacts</b> | <b>Negative development impacts</b> |
|---------------------|---------------------------------|-------------------------------------|-------------------------------------|
| <b>Thuyspunt</b>    | Good                            | Neutral                             | Bad                                 |
| <b>Bantamsklip</b>  | Neutral                         | Neutral                             | Bad                                 |
| <b>Duynefontein</b> | Good                            | Good                                | Neutral                             |
| <b>Schulfontein</b> | Bad                             | Bad                                 | Neutral                             |
| <b>Brazil</b>       | Bad                             | Bad                                 | Neutral                             |

From the table above it appears that the Duynefontein site performs better than the other sites on all counts. Thuyspunt would appear to run second; it is in an established tourist growth point and a high-potential agricultural area, which makes it much less attractive than the Duynefontein site. It is foreseen that tourism will suffer severely from the construction and operation of a nuclear power station in the area. This may have far-reaching consequences for the region from an economic perspective. Bantamsklip is a neutral site with no overriding positive or negative development and cost impacts.

Schulfontein and Brazil suffer identical cost and development problems in terms of their suitability as potential sites, and emerge as the least suitable sites. This is despite the fact that they are located in remote and sparsely inhabited areas. It should be mentioned, however, that the initial report of the specialist study on tourism posits positive impacts in these areas as a result of the enhanced infrastructure that would be provided. The economic impact judgement is less optimistic, but these differences merely reinforce the subjective nature of the initial reporting.

It must be stressed that these conclusions are not formed on the basis of detailed macroeconomic impact assessments, but are based purely on the qualitative analyses presented above. Formal studies will be conducted later to provide more definitive insights into the suitability of each site.

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