Richards Bay Wind Energy Project

Proposal of 39 Wind Turbines (Wind Farm) to be constructed in the Empangeni/Richards Bay Area of KwaZulu-Natal Province

SPECIALIST STUDY REPORT

SOCIO ECONOMIC IMPACT ASSESSMENT

FINAL REPORT
ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

For

A PROPOSED 39 WIND TURBINE PROJECT
EMPANGENI/RICHARDS BAY AREA

Reference: DEAT/EIA/0000476/2011

SPECIALIST STUDY REPORT
SOCIO ECONOMIC IMPACT ASSESSMENT

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<th>PREPARED BY:</th>
<th>PREPARED FOR:</th>
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<td>Tournet Africa</td>
<td>Coastal &amp; Environmental Services</td>
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<td>P O Box 15006</td>
<td>67 African Street</td>
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<td>Emerald Hill</td>
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January 2013

Compiled by: Peter B Myles
Report status: First Draft
Report Date: 23 January 2013
Richards Bay Wind Farm Project

Specialist Study Report Socio Economic Impact Assessment

EXECUTIVE SUMMARY

EAB Astrum Energy (Pty) Ltd, a renewable energy development company, is proposing the construction of a wind energy electricity generating facility (or a wind farm) in the Empangeni/Richards Bay area of KwaZulu-Natal Province. The proposed project will entail the erection of approximately 39 wind turbines spread over 31 adjacent property parcels and the construction of associated infrastructure. The ultimate size of the wind turbines will depend on further technical assessments but will typically consist of rotor turbines with rotor diameters up to a maximum of 120 meters. The topography of the site is primarily undulating hills with few steep slopes.

Based on a review of the site location from photo imagery and from digital data showing the site boundaries provided by EAB Astrum Energy, the SEIA specialist understands that the proposed wind energy development site at Richards Bay covers an approximate area of 60km², being approximately 10km long by an average of 6km wide. The site is located in a peri-urban and farmland setting that has a rolling topography intersected by river and stream valleys. Elevation varies across the site from a maximum of around 180mMSL in the north-west to 50mMSL in the central part of the site. The N2 intersects the south eastern portion of the site and the N2/R102 junction is shown in the same area. The R34 is located to the south west of the site connecting Empangeni with Richards Bay. The uMhlathuze LM incorporates both Empangeni and Richards Bay.

Richards Bay is primarily an industrial city with potential to develop tourism and not a holiday destination with potential to develop industry. It should be noted that the manufacturing and trade sectors contribute to over 50% of Richard’s Bay GGP. Manufacturing accounts for 24% of the jobs in Richards Bay, trade accounts for 13% and construction 8%. Renewable wind energy will usually stimulate industrial development and could make Richards Bay more attractive for infrastructure investment. It will also help to create direct and indirect job opportunities.
Key Priorities identified in the uMhlathuze LED Plan 2008 - 2011

- Accommodate future Port Expansion.
- Permit and encourage diverse land uses at appropriate locations to develop the economy.
- Ensure alignment with the district and governmental organizations in the interest of promoting tourism development without damaging the environment or ecology.
- Create opportunities for small emerging business at accessible locations by identifying nodes/investment points in both the urban and rural environment.
- Boost those economic sectors/activities that have the potential to grow and create employment and income.
- Accommodate public and private land development.

uMhlathuze Competitive Strategy

Foreign and Local Investment Is the Key Driver of Economic Growth

Competition for foreign and local investment funds is intense. Foreign direct investment in South Africa has been stagnant to a large degree. Most of the investment in uMhlathuze is from international companies with South African roots. Internationally, in parts of Europe and Australia, local government has shifted their attentions to investment facilitation, by outsourcing basic services to utility companies. National government is increasingly placing the burden on local government to increase their role in local economic development. Domestically, there is substantial competition for Foreign Direct Investment, using development corporations such as:

- Coega Development Corporation in Port Elizabeth
- Blue IQ in Gauteng
- Durban Investment Corporation
- Johannesburg Development Corporation

The Richards Bay IDC which has been the key catalyst to local economic development is shifting its focus to Africa.
Comparatively cheap electricity supply is one of the key requirements for attracting foreign investment especially for manufacturing and processing plants e.g. aluminium smelters. A wind farm facility in the region could play a major role in attracting inward investment especially if it could offer an alternative source of renewable energy without increasing the rates to local tax payers. Mozambique and Maputo in particular have been identified as a major threat to Richards Bay for investment.

**uMhlathuze Spatial Development Framework 2011**

The Spatial Development Framework of the City of Umhlathuze (11 February 2007), states that: “The detrimental environmental impacts of economic growth and development should be mitigated as far as possible. This does not mean that economic development and growth should not take place or that environmental management and conservation not be implemented, but rather that there should be a balance between the two”. The map below indicates the proposed expansion areas in which the proposed wind farm is strategically located.
The construction of the proposed wind farm, with the appropriate mitigatory measures in place, will assist in the de-centralization of power production in South Africa, and create a local source of electricity within the Umhlathuze Local Municipality area that will support expected population growth and economic development as a result of expansion of the port and population increase. Some of the spatial development goals of the city of Umhlathuze, in which regard the construction of this wind energy facility may contribute, are:

1) the expansion of the port and improvement of some existing road infrastructure
2) permitting and encouraging diverse land uses at appropriate locations to develop the economy and,
3) optimization of the use of existing resources by discouraging long-line services.

According to the SDF (refer to the map on the previous page), the proposed site for projects (on the western side of the N2) has been identified as an expansion area and as commercial farmland of low ecological significance. On the eastern side of the N2, the site occurs on land that is planned to become a nature reserve (after any eventual rehabilitation of the land portions in question).

According to the SDF map, the site of the Richards Bay wind energy facility on the western side of the N2 contains open space linkage/buffer zones that should be subject to minimal disturbance to serve effectively is channels between conservation areas. These channels help improve the transfer of genetic material between populations of fauna and flora, thus improving the health and viability of sub-populations through increased genetic variation.

Disturbance of these channels should be minimal. On the Eastern side of the N2, the land is planned for rehabilitation with a long term view of being converted into a nature reserve (as discussed above).

It should be noted that the manufacturing and trade sectors contribute to over 50% of Richard’s Bay GGP. Manufacturing accounts for 24% of the jobs in Richards Bay, trade accounts for 13% and construction 8%.
Significance Statement Tourism Impact Assessment

The significance statement below takes into consideration the impact of the proposed Richards Bay Wind Farm on all the elements which comprise the tourism system. The tourism system incorporates an integrated multi-faceted industry which includes accommodation, attractions (natural, built, cultural, social), activities, entertainment, restaurants, shops, conferences, sporting and cultural events, protected areas, etc. The main players in the industry from the public and private sectors are brokers, locals and tourists (refer to BLT model on page 28). The significance statement is therefore based on an overall tourism impact assessment.

### Significance Statement Tourism Impact Assessment

<table>
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<th>IMPACT</th>
<th>TEMPORAL SCALE</th>
<th>SPATIAL SCALE</th>
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<th>RISK OR LIKELIHOOD</th>
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Overall Significance without mitigation: **Low**

Overall Significance with mitigation: **Low**

NO-GO: **N/A**

Significance Statement Socio Economic Impact Assessment

The significance statement overleaf takes into consideration the impact of the proposed Richards Bay Wind Farm on the socio economic environment. The SEIA environment is comprised of all the relevant factors included in the uMhlathuze IDP and LED documents. These factors include industry sectors, Port of Richards Bay, future expansion, social environment, employment, local residents, inward investment, competitiveness, renewable energy, property prices, etc. The significance statement is therefore based on an overall socio economic impact assessment.
Significance Statement Socio Economic Impact Assessment

<table>
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<tr>
<th>IMPACT</th>
<th>TEMPORAL SCALE</th>
<th>SPATIAL SCALE</th>
<th>SEVERITY OF IMPACT</th>
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<td>Study Area 2</td>
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Overall Significance without mitigation: Moderate

Overall Significance with mitigation (refer to commentary below): Low

NO-GO: N/A

Findings from Benchmark Studies

There is often strong hostility to developments at the planning stage of a wind energy installation on the grounds of the scenic impact and the knock on effect on tourism. In practice there is very little evidence of a negative effect on tourism. Although there may be a loss of (scenic) value to a significant number of individuals, there are also a significant number of tourists who believe that wind turbines enhance the scene.

A benchmark study undertaken in Scotland is relevant to the proposed wind farm development due to similarities in the scenic beauty and undulating landscapes in the Richards Bay study area. Scotland is known for its beautiful countryside and yet studies on wind farms in that country indicate no significant reduction in tourist numbers since the introduction of wind farms.

The novelty of a wind farm in South Africa could in itself be a form of mitigation against initial hostilities from some quarters and can be a tourist attraction. Over time hostility to wind farms lessens and they become an accepted even valued part of the scenery. Those closest seem to like them most. Whilst there is an undoubted loss of value the effect on tourism in practice is extremely small. Anyone travelling the full distance of a particular tourist route will usually be exposed to a wind farm for a relatively short period of time as they travel from one destination to another.
6)

Summary and Conclusion of the SEIA

Wind energy is cost effective. To run a conventional power generation facility, the operator must purchase fuel at varying prices, creating volatility in the cost of energy produced by that facility. In areas with a robust wind resource, wind-generated electricity is very competitive with, and sometimes less expensive than, conventional generation sources such as natural gas. In contrast with fossil fuel fired and biomass fired power generation, wind generators require no water. The reality is that most parts of RSA will be experiencing severe water shortages by the year 2030. Fossil fuel power generation produces sulphides and sulphates that corrode farm fences, farm buildings and farm equipment. Wind power is clean. The price of fossil fuel generation is predicted to rise by 25% per annum. It is self evident that within a few years wind power will be more cost effective than fossil fuel power.

A wind farm will provide farmers with a guaranteed annual source of extra income for the length of their lease. Wind Farming is highly compatible with agriculture requiring less than 5% of land usage and thus having a proportionate impact on the ongoing farming activities. Turbines do not disturb livestock which continue to roam through the wind farm and graze. In fact some animals enjoy lying beside the base of the turbine as it provides shade for them!

Wind farms also bring benefits to local communities living within a 50km radius of wind farms through job creation, energy security and money contributed back to the community generally through a Community Fund or Trust.

Conclusive evidence collected from international wind energy research studies tend to confirm that wind farms have had no negative impact on tourist numbers.

The proposed wind energy electricity generating facility with a combined generation capacity of up to 110 MW from the installation of 39 wind turbines, strategically located to serve the Richards Bay IDZ and areas identified for future expansion, would go a long
way towards positioning Richards Bay as an attractive and viable area for investment and infrastructure development.

7) Richards Bay Wind Farm Project Socio Economic Impact Assessment

- Executive Summary
- Acronyms

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SOCIO ECONOMIC IMPACT ASSESSMENT (SEIA) OF THE PROPOSED WIND ENERGY SITE IN THE RICHARDS BAY AREA

1. **Details of the Specialist**

   Peter Myles is one of South Africa’s leading tourism professionals. He entered the travel and tourism industry for the first time in 1988 as the Director of Tourism Port Elizabeth (destination marketing) and then in 1993 as Regional Director for the South African Tourism Board in the Eastern Cape (tourism development). In 1995 he decided to establish his own business as a tourism specialist and developed Tournet Africa a network of associated specialists in Southern Africa and other parts of the world to focus on major tourism development projects. He has written articles for tourism journals, prepared strategic tourism plans, designed appropriate organizational structures, facilitated tourism enterprise development, conducted tourism research in South Africa, Zambia, USA, Australia, New Zealand, United Kingdom and the Caribbean, compiled visitor statistics, presented capacity building training courses, facilitated tourism workshops and prepared project proposals.

   Peter has served on a number of statutory boards and professional associations. These include: Tourism Business Council of South Africa, Eastern Cape Tourism Board, and Eastern Cape Bioregional Implementation Committee. He currently serves as Chairman of: Nelson Mandela Bay Tourism Industry Association, Nelson Mandela Bay Maritime Cluster and Eastern Cape Coastal Route Association. Peter is affiliated to NMMU and also serves as an Advisory Board Member at the Port Alfred Campus of the Netherlands based Stenden International University SA.

   Peter has a postgraduate MSc degree in Tourism Development & Management. He is a PhD candidate currently busy with a research project on coastal and marine tourism. Peter is a Member of the IUCN Tourism and Protected Areas Specialist Group, a Member of the IUCN World Commission on Protected Areas and a Member of the Global Sustainable Tourism Council. He is registered with IUCN to undertake desktop reviews of World Heritage Site (WHS) nominations. He is a Steering Committee Member of the International Coastal & Marine Tourism Society. Peter currently works as a
tourism specialist with a number of associated project teams. He fully subscribes to the Global Code of Ethics for Tourism.

2. **Introduction**

EAB Astrum Energy (Pty) Ltd, a renewable energy development company, is proposing the construction of a wind energy electricity generating facility (or wind farm) in the Empangeni/Richards Bay area of KwaZulu-Natal Province. The proposed project will entail the erection of approximately 39 wind turbines spread over 31 adjacent property parcels and the construction of associated infrastructure. The ultimate size of the wind turbines will depend on further technical assessments but will typically consist of rotor turbines with rotor diameters up to a maximum of 120 meters. The topography of the site is primarily undulating hills with few steep slopes.

Based on a review of the site location from photo imagery and from digital data showing the site boundaries provided by EAB Astrum Energy, the SEIA specialist understands that the proposed wind energy development site at Richards Bay covers an approximate area of 60km², which is about 10km long by an average of 6km wide. The site is located in a peri-urban and farmland setting that has rolling topography intersected by river and stream valleys. Elevation varies across the site from a maximum of around 180mMSL in the north-west to 50mMSL in the central part of the site. The N2 intersects the south eastern portion of the site and the N2/R102 junction is shown in the same area. The R34 is located to the south west of the site connecting Empangeni with Richards Bay. The uMhlathuze LM incorporates both Empangeni and Richards Bay.
3. **Study Methodology**

3.1. **Terms of reference**

The SEIA specialist has conducted this assessment according to the following terms of reference:

- Conduct a desktop review of all relevant literature e.g. all Richards Bay wind farm impact assessments undertaken by other specialists, uMhlathuze IDP, uMhlathuze LED Strategy, uMhlathuze SDF, tourism plans and surveys, global benchmark studies on the impact of wind farms in other countries, etc. The literature search is listed in the Bibliography.

- Visit the Richards Bay Wind Energy site.

- With reference to the uMhlathuze IDP, review and assess the economic impact of the wind energy project on all sectors of the economy within the LM area in terms of:
  - Contribution to economic growth in the region (Direct and Indirect) – Gross Domestic Product per Region (GDPR);
  - Impact on regional development (business and other);
  - Impact on productivity and production (sales, etc.) of existing firms in the region;
  - Impact on infrastructure and resources in the region;
  - Improved competitiveness of the region.

- Assess the impact of the wind energy project on tourism growth in the study area.
• Conduct an initial socio-economic needs analysis of the identified areas in collaboration with EA Energy (Pty) Ltd and local authorities which will also include:
  ➢ Impact on employment;
  ➢ Impact on income;
  ➢ Impact on social lives of local communities;
  ➢ Impact on social upliftment;
  ➢ The analysis should also identify the key industries which operate within the identified areas and identify, if possible, LED projects that will stimulate the local economy.
• Assess as far as possible the potential impact of the Richards Bay wind energy project on property prices in the study area.

3. Assess the economic impact of the Richards Bay wind energy project on inward investment i.e. will it encourage or discourage investment to the study area.
• Assess the costs and benefits of the Richards Bay wind energy project to the local economy.
• Assess and evaluate the anticipated impacts, and;
• Make recommendations for relevant mitigation measures which will allow the reduction of negative impacts and the maximization of the benefits associated with any identified positive impacts.

3.2 Approach

The SEIA approach adopted the following process:
• An extensive review of available international literature pertaining to the socio economic impact of wind farms in order to fully understand the issues involved and the current level of knowledge in this field. This international knowledge was then adapted to local conditions as far as possible in order to identify the potential impact of a wind energy facility in the study area.
• The SEIA report does not attempt to duplicate the information already included in other specialist reports but the SEIA does reference relevant information contained in these reports where and when it is applicable to the SEIA report.
• The BLT (Broker-Local-Tourist) Model has been applied to the study area.
• Recommendations were made for the management and mitigation of impacts.
• This study relies mainly upon secondary sources of data due to the fact that very little if any socio economic impact assessments for wind farms have been undertaken in South Africa. Hence very little primary data is available.

4. Assumptions and Limitations

No primary research on wind farms has been undertaken in South Africa. Turning to overseas research, there is a further, limited amount of material from other parts of the world on the impacts of wind turbines on the tourism sector. While it has not been possible to undertake a comprehensive review of relevant studies in this regard, the SEIA specialist has looked in some detail at individual reports and citations relating to international evidence. The following broad picture emerges:

• There are no obvious major primary research studies on the overall impact of wind turbines on the tourism sector.
• Studies in the last decade in some European studies on overall attitudes to wind energy have provided some general indication of the level of public concern about the impact on scenery and tourism – e.g. Synovate (2003) for France and Bielefeld University (2003) for Germany.
• More specific reports from European countries on the impact of wind farms on residents and tourists (often with the two taken together and not sufficiently differentiated) have been cited in the UK studies. In particular, there has been reference to attitudes in Denmark, which has observed significant wind farm presence for many years. Attitudinal studies in parts of Spain are also reported.
In the USA there have been a number of sizeable studies undertaken on the potential economic impact of new off-shore wind farms, including research on visitor’s attitudes to future beach trips – e.g. Blaydes et.al (2007), Global Insight (2008).

Various reports on proposed wind farm developments elsewhere, e.g. South Africa, Australia, have been undertaken, but usually without primary research on visitor attitudes, behavior and expectations, and often quoting the UK research evidence (notably from Scotland).

A recent study in the Czech Republic including a primary survey of visitors and enterprises is, unusually, to be found in the academic literature. Frantal and Kunc (2011).

Taking the above into consideration, and after a comprehensive review of the other specialist reports, the SEIA specialist has little option but to make certain assumptions.

5. **Study Area (Socio Economic Environment)**

The City of uMhlathuze (KZ 282) is situated on the north-east coast of the province of KwaZulu-Natal, some 180 kms north-east of Durban and is one of six local municipalities within the uThungulu District. The uMhlathuze area covers 796 km² incorporating Richards Bay, Empangeni, eSikhawini, Ngwelezane, eNseleni, Felixton and Vulindela, as well as the rural areas under Amakhosi namely, Dube, Mkhwananzi, Khoza, Mbuyazi and Zungu. The population is estimated at 325 000 located in 82 972 households of which 50 percent is rural and 50 percent urban. Unemployment levels sit at around 40%. The City provides an attractive reference point and essential socio-economic amenities and facilities to most of the towns in the northern region.

The city borders a coastline that spans approximately 45 kilometers in length of which nearly 80% of it is in its natural state. The N2 highway traverses uMhlathuze Municipality in a north-east direction towards the Swaziland border and south-west towards Durban. It effectively forms a division between Empangeni and Richards Bay. The R34 Provincial Main Road passes through Empangeni towards Melmoth.
Attraction to the City has been promoted by the vast natural mineral resources that are in existence. The major primary industries that exist have provided job opportunities within and outside the district.

6.

The climate and the location of the city within the luscious vegetation, lakes and sea, provide the ingredients for a most sort after destination with unique features. Richards Bay’s climate is characterized by a warm to hot and humid subtropical climate, with warm moist summers. Average daily maximum temperatures range from 29°C in January to 23°C in July, and extremes can reach more than 40°C in summer. The average annual rainfall is 1 228 mm and most (80%) of the rainfall occurs in the summer, from October to March, although rainfall also occurs in winter (20%).

The Richards Bay area is generally very flat and is situated on a coastal plain and whilst going west towards Empangeni the terrain rises and becomes undulating. The suburbs are all no more than a few metres (ranging around 140m) above sea level. The area is abundant in coastal dune forest, most notably along the coastal dune belt and in the suburb of Meerensee.

Table 1: Municipal Land Area

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<td>-----------------</td>
<td>------------</td>
</tr>
<tr>
<td>Richards Bay</td>
<td>290.0</td>
<td>36.5%</td>
</tr>
<tr>
<td>eNseleni</td>
<td>1.3</td>
<td>0.2%</td>
</tr>
<tr>
<td>Empangeni</td>
<td>28.9</td>
<td>3.6%</td>
</tr>
<tr>
<td>Felixton</td>
<td>2.8</td>
<td>0.3%</td>
</tr>
<tr>
<td>eSikhaleni</td>
<td>6.2</td>
<td>0.8%</td>
</tr>
<tr>
<td>Vulindlela</td>
<td>0.8</td>
<td>0.1%</td>
</tr>
<tr>
<td>Ngwelezane</td>
<td>3.7</td>
<td>0.5%</td>
</tr>
<tr>
<td>5 Traditional Authority areas, 21 rural settlements and 61 farms</td>
<td>462.1</td>
<td>58.0%</td>
</tr>
<tr>
<td><strong>Total municipal land area</strong></td>
<td><strong>795.8 km²</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

(Source: uMhlathuze IDP 2012/2017)

Whilst striving to improve the City and its people there still exists a largely divided society with spatial distortions characteristics of the past, making social cohesion a distant reality. Institutionally the municipality needs to passionately take on board the corrective new policies to create efficient and integrated land developments. The slow pace of economic recovery is also placing huge strain on the municipality financial sustainability and the attraction of economic investment in the town.

7.

Other challenges facing the city are rural development, employment, affordable housing, and maintenance of infrastructure and health issues. As a City great efforts are being made to reduce backlogs by prioritizing basic needs to improve the quality of life of its citizens and also to involve the community in the affairs of the municipality thus keeping them informed and having a say. In order for the city to deal with financial management the city needs to curb over-expenditure. Responsibility to ensure that all projects run effectively is to be practiced. A budget for disaster needs to be kept aside for any outstanding projects and management needs to tighten the belt on overtime. The next five year projects need to be managed accordingly with their timeframes.

Meters in the rural areas are a concern. The municipality has put in place a performance management system to record progress and report quarterly to council for performance assessments. The drafting of the Integrated Development Plan (IDP) is undertaken internally, using a framework provided by the Department of Cooperative Governance and Traditional Affairs. In order for local government to operate the same they have to follow common objectives i.e.
• Provide democratic and accountable government;
• Provision of Services to the community in a sustainable manner;
• Promote Social and Economic Development;
• Promote a safe and healthy environment; and,
• Encourage the involvement of communities and community organization in matters of local government.

6. **Socio-Economics Profile**

Richards Bay falls within the fastest growing provincial economies at an average rate of 4.3% per annum. The Port of Richards Bay is one of the two largest and busiest Ports in Africa creating a drive for the area to be one of the major industrial investment opportunities. The Port plays an important economic role not only for the KZN province but for the whole of South Africa (SA). Whilst they are presently export oriented, the potential for import prospects are being contemplated. The City also functions as a district node and dominant commercial centre in the uThungulu District providing greater economic opportunities for the town and hinterland.

8.

The key feature of uMhlathuze Municipality is the N2 Development Corridor, eThekwini-Ilembe-uMhlathuze Corridor. The Dube Trade Port, (King Shaka International Airport), is approximately 145 kilometers away from the City which again makes it an added advantage to the area in terms of investment attraction. The area is the third most important in KZN in terms of economic production, contributing 16.7% to national Gross Domestic Product (GDP) whilst also the third most important primary manufacturing area in KwaZulu-Natal (KZN) in terms of economic production.

Manufacturing is highly specialized export orientated, largely concentrated on basic iron and steel, paper and printing as well as food and beverages. The sector is characterized by highly sophisticated manufacturing processes. The large scale industrial strengths of the uMhlathuze centre comprise of a varied industrial base of coal terminals and aluminium smelters, coupled with an impressive number of industries including mining companies and paper mills, forestry, production of materials handling equipment, as well as fertilizer and special chemicals production.
The City of uMhlathuze is rich in mineral resources. The mining of these minerals meets all of South Africa’s (SA) demand for titanium dioxide, zircon and almost all of the country’s pig iron requirements. Most of the industrial and commercial activities are vested in Richards Bay, Empangeni and Felixton (specifically the industrial development nodes of the City of uMhlathuze). The manufacturing sector employs the majority of population. Manufacturing contributes 29% of the national GDP. The advent of the Richards Bay Industrial Development Zone (IDZ) within the vicinity of Richards Bay harbour serves to boost economic activity and to attract international investors wishing to take advantage of the opportunities on offer.

The general area surrounding the overall project study area is constituted by a number of land uses, mostly agricultural, residential or industrial. It has been noted that Empangeni town is situated immediately south of the project area with Richards Bay further to the east. As such, the landscape can be described as a mixture of these land uses, with agricultural viewsheds interspersed with industrial infrastructure dominating the visual landscape.

6.1 Social Profile

Demographics

The City of uMhlathuze has an estimated 349,576 total population and about 82,972 households. This makes the average household size 4.2 persons per household.

Table 2: Population Distribution

<table>
<thead>
<tr>
<th></th>
<th>MALES</th>
<th>FEMALES</th>
<th>TOTAL</th>
<th>% OF WHOLE POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 4</td>
<td>17,445</td>
<td>18,007</td>
<td>35,452</td>
<td>10.41%</td>
</tr>
<tr>
<td>5 - 9</td>
<td>16,766</td>
<td>20,867</td>
<td>37,633</td>
<td>11.07%</td>
</tr>
<tr>
<td>10 - 14</td>
<td>18,602</td>
<td>17,903</td>
<td>36,505</td>
<td>10.70%</td>
</tr>
<tr>
<td>15 - 19</td>
<td>17,480</td>
<td>21,243</td>
<td>38,723</td>
<td>11.40%</td>
</tr>
<tr>
<td>20 - 24</td>
<td>21,854</td>
<td>28,407</td>
<td>48,261</td>
<td>14.12%</td>
</tr>
<tr>
<td>25 - 29</td>
<td>17,419</td>
<td>15,875</td>
<td>34,294</td>
<td>9.76%</td>
</tr>
<tr>
<td>30 - 34</td>
<td>12,973</td>
<td>12,371</td>
<td>25,344</td>
<td>7.36%</td>
</tr>
<tr>
<td>35 - 39</td>
<td>11,088</td>
<td>11,852</td>
<td>22,940</td>
<td>6.63%</td>
</tr>
<tr>
<td>40 - 45</td>
<td>7,618</td>
<td>10,605</td>
<td>18,223</td>
<td>5.20%</td>
</tr>
<tr>
<td>45 - 49</td>
<td>7,145</td>
<td>9,220</td>
<td>16,365</td>
<td>4.64%</td>
</tr>
<tr>
<td>50 - 54</td>
<td>5,389</td>
<td>6,984</td>
<td>12,373</td>
<td>3.13%</td>
</tr>
</tbody>
</table>
The age category with the highest population is between the ages of 20-24 placing huge demands for social and economic opportunities. Youth (15-35 years) makes up 41.6% (137 622) of the people of uMhlathuze. The age group 65 years and above, 8 840 (2.7%) depends on social grants for sustenance.

Table 3: Population’s Well-Being

<table>
<thead>
<tr>
<th></th>
<th>MALE</th>
<th>FEMALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>163 098</td>
<td>167 537</td>
</tr>
<tr>
<td>Annual Growth Rate (KZN)</td>
<td>2.2%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Life expectancy (KZN)</td>
<td>47.3 years</td>
<td>51.9 years</td>
</tr>
<tr>
<td>Average life expectancy (KZN)</td>
<td>49.1 years</td>
<td>49.1 years</td>
</tr>
<tr>
<td>Infant mortality (KZN)</td>
<td>60/1000</td>
<td>60/1000</td>
</tr>
</tbody>
</table>

(Source: Stats SA, 2009 (Medical Research))

Table 3 on the previous page clearly depicts a situation where the City has to strategize for years to come in order to rectify the consequences of the above situation. There are a high number of infants that die at birth. Females account for 51% of the total population. The estimated population growth rate is 1.18% for males and 0.94% for females. This means that it will take a short period for the population of uMhlathuze to double. By 2043 the population of uMhlathuze will nearly double to 705 382. Increased population growth generally represents problems. This means that there will be an increase in the need for food, infrastructure, and services. These are expenses that are difficult for most cities to provide. Life expectancy of the local communities has decreased due to health related conditions like TB and HIV/AIDS.

The City anticipates an influx of people coming into the area and there will be a need to promote infill development. Future development should be strategically planned by providing a timely release of adequate and appropriately located land where vibrant economic and social life can be promoted through a diversity of land uses.
Table 4: Suburbs and Traditional Area

<table>
<thead>
<tr>
<th>PLACE</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>KwaDube</td>
<td>52 239</td>
</tr>
<tr>
<td>KwaKhoza</td>
<td>17 950</td>
</tr>
<tr>
<td>KwaZungu</td>
<td>48 977</td>
</tr>
<tr>
<td>KwaMkhwanazi</td>
<td>32 758</td>
</tr>
<tr>
<td>Ngwelezane</td>
<td>11 327</td>
</tr>
<tr>
<td>eSikhaleeni</td>
<td>32 437</td>
</tr>
<tr>
<td>Vulindlela</td>
<td>30 605</td>
</tr>
<tr>
<td>eNseleni</td>
<td>8 873</td>
</tr>
<tr>
<td>Richards Bay</td>
<td>32 437</td>
</tr>
<tr>
<td>Empangeni</td>
<td>13 306</td>
</tr>
<tr>
<td>Remainder of Municipality</td>
<td>108 862</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>349 576</strong></td>
</tr>
</tbody>
</table>

(Source: Stats SA, 2007)

Table 5: Concentration of People per Suburb

<table>
<thead>
<tr>
<th>AREA</th>
<th>KM²</th>
<th>%</th>
<th>PERSONS PER KM²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richards Bay</td>
<td>289,9966</td>
<td>36.5%</td>
<td>526 - 1 192</td>
</tr>
<tr>
<td>eNseleni</td>
<td>1,3325</td>
<td>0.2%</td>
<td>3 899 - 6 421</td>
</tr>
<tr>
<td>Empangeni</td>
<td>28,9386</td>
<td>3.6%</td>
<td>526 - 1 192</td>
</tr>
<tr>
<td>Felixton</td>
<td>2,7835</td>
<td>0.3%</td>
<td>2 - 525</td>
</tr>
<tr>
<td>eSikhaleeni</td>
<td>6,2304</td>
<td>0.8%</td>
<td>3 899 - 6 421</td>
</tr>
<tr>
<td>Vulindlela</td>
<td>0,8464</td>
<td>0.1%</td>
<td>1 193 - 2 084</td>
</tr>
<tr>
<td>Ngwelezane</td>
<td>3,7001</td>
<td>0.5%</td>
<td>1 193 - 2 084</td>
</tr>
<tr>
<td>5 Traditional Authority areas, 21 rural settlements and 61 farms</td>
<td>462,1426</td>
<td>58.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Total Municipal Land Area</strong></td>
<td><strong>795,9707</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>3 899 – 6 421</strong></td>
</tr>
</tbody>
</table>

(Source: Quality of Life Survey, 2007)

6.2 uMhlathuze Municipal IDP 2012/2017

Other natural advantages are the diverse and intensifying agriculture production, including the rich land of sugarcane and forestry. The cane and forestry sectors have
been at the forefront of assisting emerging farmers. The agricultural sector is a dual economy, consisting of commercial agriculture on one hand and traditional agriculture on the other. Agricultural activity is more concentrated in the former Lower Umfolozi magisterial area. Traditional agriculture is practiced on most of the Traditional Council lands in the district.

The development of this sector is hindered by a low skills base and a lack of organized bodies to provide financial assistance; access to markets and market channels. An Agricultural Development Plan has been prepared for the uThungulu District Municipality (UDM). This plan identifies specific programs and projects to address rural poverty. The City of uMhlathuze meanwhile participating in this initiative, has concurrently been implementing its Local Economic Development Strategy 2008-2011. This program has assisted many community members with programs such as agricultural support, community skills development, informal trading administration and tourism development.

The City is still to develop its LED Strategy for the years 2012-2017. The draft was approved in September 2012. A total of 519 community members have benefited from the LED program since 2010 to date.

12.

7. **The Local Economy**

uMhlathuze’s Economy has the following components:

- Local Economic Development
- Agriculture
- Tourism
- Other sectors such as mining, construction and manufacturing

Key issues identified that relate to the economy include:

- Increase in unemployment;
- 41.8 % of the population is subject to conditions associated with poverty;
- Little or no diversity in the economy;
- Declining resource base and the impacts of climate change.
Table 6: Sectoral Contributions to the Economy

<table>
<thead>
<tr>
<th>ECONOMIC SECTOR</th>
<th>% TOTAL 2001</th>
<th>% TOTAL 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>46.6%</td>
<td>45.9%</td>
</tr>
<tr>
<td>Community Services/Social</td>
<td>12.9%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Trade</td>
<td>6.2%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Financial/Real Estate/Business</td>
<td>8.3%</td>
<td>10.7%</td>
</tr>
<tr>
<td>Agriculture/Forestry/Fishing</td>
<td>4.9%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Construction</td>
<td>2.5%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Transport/Communication</td>
<td>11.5%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Mining/Quarrying</td>
<td>6.0%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Electricity</td>
<td>1.1%</td>
<td>0.6%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

(Source: Stats SA, 2001)

13.

The uMhlathuze Municipality has shown a slight decrease since 2001. The economic sectors that have shown a slight increase are financial and mining. The increase in the mining sector has been significant in that this sector is the second largest economic contributor above community services. The global economic recession has affected the uMhlathuze area and the impact was severely felt during years 2008 - 2010. This is one of the reasons that there has been a slight decrease in the economic performance in the area.

With reference to Table 6 on the previous page, a notable exception is the contribution of the tourism sector. It does not appear that data for calculating the contribution of the tourism sector to local GGP has been captured. The calculation requires an accommodation audit to be undertaken. Thereafter, quantifying the number of available beds in the accommodation establishments, estimating the average room and bed occupancy percentages, estimating the average rate of bed night and room
night sales, identifying the demographic split of domestic and foreign visitor overnight stays, estimating the number of domestic day trips, and applying the tourism satellite account (TSA) methodology to estimate the size of the local tourism economy.

8. **uMhlathuze Municipal Vision**

The current municipal Vision is as follows:

"The City of uMhlathuze, as a port city, will offer improved quality of life for all its citizens through sustainable development. It will be a renowned centre for: Trade, Tourism and Nature-lovers, Coastal Recreation, Commerce, Industry, Forestry, and Agriculture"

Council deliberated on a couple of Vision suggestions and chose the most suitable for the municipality and the City.

**uMhlathuze’s new Vision**

“**The Port City of uMhlathuze offering improved quality of life for all its citizens through sustainable development**”

9. **uMhlathuze Development Strategy**

The uMhlathuze IDP 2012 - 2017 is a 183 page document. It is not the intention of the Richards Bay Wind Farm SEIA to duplicate the content of this document except for where there is information that is relevant to the SEIA report. The objectives of the IDP are strictly to ensure that the IDP is the principal strategic planning instrument that guides and informs all planning and development and all decisions with regard to planning, management and development of the municipality. The IDP includes various development strategies which require implementation. The Infrastructure & Services Provision Strategy has identified the following key action:

“**Support research for innovative and creative plans for alternative sources of energy and water**”.
According to the IDP the percentage of households with no electricity is greater than 75%. In terms of Eskom’s electricity backlogs, effort should be focused on Ward 11, followed by wards 5, 24, 18, 8 and 13.

10. **Provision of Electricity**

In terms of electrification, the Municipality has no backlogs. Eskom will service the areas indicated as having no access to electricity. During 2010, Eskom requested the Municipality to assist in determining backlogs. Using the Ward Committee system, residents reported the highest backlogs being in Ward 11, followed by wards 5, 24, 18, 8 and 13. This corresponds well with the Census data but highlights additional areas in need of electrification.

Information has been received by the municipality that the grid code will be enforced by the regulator. This provides the guidelines and rules that will govern how Municipalities create and maintain electrical infrastructure assets. As part of the license to distribute electricity distributors have to comply with the “Distribution Grid Code”.

The municipality completed its maintenance and electricity infrastructure audit. A risk report was compiled and is currently under review for comments. Several items deemed critical, and within the means of Council’s budget were addressed.

15.

The following initiatives were prioritized by the municipality:

- **In the Msasandla area**: 70% of the work to be completed by end of March 2012.
- **Dlangezwa area**: 145 houses to be connected in the 2012 - 2013 financial year.
- **Mkhoma Mampolwane**: 108 houses to be connected in the 2012 - 2013 financial year.
- **Bomvini/Mhlanga**: 140 houses to be connected in the 2012 - 2013 financial year.
- ESKOM is requesting proper planning from the Municipal side especially at Esikhalelni where they can’t cope with the infill houses.
- Municipality and Councillors to assist ESKOM in prioritizing the projects and infills through council resolution to avoid them being pulled into different directions whilst they have started with their plan of electrification.
The SWOT Analysis undertaken in the latest uMhlathuze IDP (2012 - 2017) makes reference to an assessment of the status quo regarding adequate energy and water supply as indicated on the next page. It is worth noting that the establishment of the proposed Richards Bay Wind Energy Installation will contribute to strengthening the existing electricity grid for the area and will aid the government in achieving its goal of a 30% share of all new power generation being derived from Independent Power Producers (IPP).

10.1 Ensuring adequate energy and water supply

The unsustainable use of resources such as energy and water has major impacts on the environment, and will ultimately compromise the Municipality’s energy security, as well as its ability to deliver water of adequate quality and quantity to its citizens. In the case of water, whole catchment management areas (including areas that fall outside of the municipal area) as well as efficient nature conservation programs will help to ensure that there is an adequate supply of clean water. The most sustainable solution to the energy crisis is to reduce the demand for energy and at the same time investigate alternative renewable energy sources.

10.2 The uMhlathuze LED Social & Economic Development Strategy 2008/2011

Aim

- To improve physical and functional integration within the City of uMhlathuze, whilst protecting the City’s natural resources and assets through effective Environmental Management, in order to improve access to opportunities.

- To create opportunities through economic growth and development within the City of uMhlathuze and to promote economic upliftment of its communities.

Goals (relevant to the Richards Bay Wind Energy Project)

- Establish a Hierarchy of Nodes throughout the City of uMhlathuze
• Promote a Diversity of Land Uses, Activities and Opportunities
• Implement the outcomes of the Strategic Environment Assessment
• Extend the Metropolitan Open Space System
• Enhance the Tourism Potential of the City of uMhlathuze
• Promote Local Economic Development Initiatives
• Promote Primary Industrial Development
• Support existing local economic development initiatives and encourage new initiatives
• Promote a diversity of economic activities throughout the City

11. Richards Bay Wind Farm Site

The block of farms covering an area of some 5 950 ha on which it is proposed to establish the wind energy generation facility is comprised of sugarcane, timber, indigenous bush, roads, quarries, dams and farm infrastructure. The farms have been under sugarcane for the last 100 years, with a small portion of timber having been established sixty years ago. The terrain is gently undulating except for some steep wooded hills in the northeast, overlooking the Nseleni River. The assessment area (the site) is used fundamentally for sugarcane farming with timber being a smaller secondary agricultural activity. This study is therefore fundamentally an assessment of the impact of the proposed wind farm on the surrounding socio economic environment.
Confronted with the renewable energy options research indicates that many people around the world now accept wind power as a cleaner and safer option than other sources of renewable energy such as nuclear plants even if there is a visual and noise impact on the tourism environment. Furthermore, when one considers the possible consequences of continued release of greenhouse gases due to the burning of fossil fuels, the prospect of a wind farm seem less daunting.

11.1 Description of the proposed wind energy facility

EAB Astrum Energy (Pty) Ltd proposes to build a wind energy facility with a combined generation capacity of up to 110 MW, near Richards Bay/Empangeni, KwaZulu Natal. In order to achieve this output up to 39 wind turbines of between 1.5MW and 3MW each will be built. The proposed activity is the establishment of a wind energy facility (WEF) and associated infrastructure. A broader area of approximately 5 950 hectares is being considered within which the facility is to be constructed.

The proposed facility would include:
• Up to 39 wind turbines with foundations to support the turbine towers;
• Each turbine would consist of a tower of 80 to 140m height, and a rotor of up to 120m diameter
• Cabling between turbines, to be lain underground where practical;
• A substation to facilitate the connection to the grid
• Power lines feeding into the existing Eskom grid
• Internal access roads to each wind turbine.
• Building to house the control instrumentation and backup power support, as well as a store room for the maintenance of equipment

Currently there is no alternative site for consideration for the overall wind energy facility. Layout has been progressively adopted to accommodate EIA recommendations.

The proposed wind energy project site was selected due to good wind resources suitable for the installation of a large wind energy facility. Also the proximity of the site to connectivity opportunities such as substations or High Voltage (HV) overhead lines traversing the proposed development site is an advantage.

12. **Tourism Profile**

There does not appear to be any tourism statistics relating to Richards Bay. This means that the economic impact of tourism cannot be calculated. In 2001, a domestic tourism survey was commissioned by SA Tourism which provided an indication of tourism distribution in each province of South Africa. This survey using the same methodology has never been repeated. According to this survey Durban Central accounted for 31.3% of the total tourism trips taken in KZN, Natal Midlands accounted for 11.3% of the trips, South Coast accounted for 9.6% of the trips, and North Coast accounted for 3.7% of the trips.

13. **Tourism Impact Assessment (TIA)**
13.1 Introduction

Prior to 2010, SA Tourism could only report on foreign visitor arrivals as there was no way of separating out day visitors from the overall arrivals. In 2009, Statistics SA for the first time was able to make the distinction between overnight tourists and day visitors and started a data series for tourist arrivals that was aligned to the globally accepted definition of a tourist. As a result of this change, the weighting methodology has been revised and this means that statistical reports prior to 2009 are not comparable.

Worldwide, international tourist arrivals grew by 4.4% in 2011 to reach 980 million. The growth was mainly driven by advanced markets, where arrivals grew by 5.0% while emerging markets grew by 3.8%. Foreign tourist arrivals to South Africa grew by 3.3% over 2010, an additional 265,802 tourist arrivals. Despite the growth in tourist arrivals, revenue generated from foreign tourism decreased by -2.2% (-R1.6 billion) during the same period mainly due to the impact of the recession.

Table 7: Purpose of visit by all foreign tourists

<table>
<thead>
<tr>
<th></th>
<th>Leisure</th>
<th>Business</th>
<th>Medical</th>
<th>Religion</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>59.6%</td>
<td>29.6%</td>
<td>5.0%</td>
<td>0.6%</td>
<td>5.1%</td>
</tr>
<tr>
<td>2010</td>
<td>57.1%</td>
<td>30.8%</td>
<td>4.7%</td>
<td>0.3%</td>
<td>7.1%</td>
</tr>
<tr>
<td>2011</td>
<td>57.9%</td>
<td>30.1%</td>
<td>4.5%</td>
<td>0.5%</td>
<td>7.0%</td>
</tr>
</tbody>
</table>

(Source: SA Annual Tourism Reports)

Leisure tourism accounts for nearly 58.0% of South Africa’s foreign arrivals. The above table clearly indicates that the leisure tourism market is extremely vulnerable to the impact of the global recession. Globally, long-haul foreign tourists are traveling closer to home and in some cases opting not to travel overseas. A survey conducted in the UK indicated that 40% of British tourists decided not to travel away from home in 2011.

Domestic tourists made 26.4 million trips in 2011 compared to the 29.7 million in 2010. About 44% of the South African population traveled in 2010. Inter-provincial tourism accounted for 51% of the total domestic tourism trips in 2011 and intra-provincial accounted for 49%.
13.2 KZN Tourism Overview

There are no published statistics for cities and towns in South Africa and hence if cities and towns do not capture their own data then it is impossible to calculate the economic impact of tourism. Only national and provincial tourism statistics are available and these reports are released by SA Tourism and Statistics SA monthly, quarterly and annually.

**Table 8: Provincial Distribution – All Foreign Tourist Arrivals**

<table>
<thead>
<tr>
<th>Province</th>
<th>2009</th>
<th>%</th>
<th>2010</th>
<th>%</th>
<th>2011</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gauteng</td>
<td>3,313,344</td>
<td>37%</td>
<td>3,991,656</td>
<td>39%</td>
<td>3,861,941</td>
<td>38%</td>
</tr>
<tr>
<td>Western Cape</td>
<td>1,316,795</td>
<td>15%</td>
<td>1,504,698</td>
<td>15%</td>
<td>1,391,228</td>
<td>14%</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>1,035,328</td>
<td>12%</td>
<td>1,135,697</td>
<td>11%</td>
<td>1,316,869</td>
<td>13%</td>
</tr>
<tr>
<td>Limpopo</td>
<td>893,714</td>
<td>10%</td>
<td>1,046,647</td>
<td>10%</td>
<td>1,009,562</td>
<td>10%</td>
</tr>
<tr>
<td>KwaZulu-Natal</td>
<td>861,484</td>
<td>10%</td>
<td>956,550</td>
<td>9%</td>
<td>908,277</td>
<td>9%</td>
</tr>
<tr>
<td>Free State</td>
<td>573,494</td>
<td>6%</td>
<td>589,708</td>
<td>6%</td>
<td>684,686</td>
<td>7%</td>
</tr>
<tr>
<td>North West</td>
<td>444,501</td>
<td>5%</td>
<td>531,869</td>
<td>5%</td>
<td>500,350</td>
<td>5%</td>
</tr>
<tr>
<td>Eastern Cape</td>
<td>315,094</td>
<td>4%</td>
<td>354,957</td>
<td>4%</td>
<td>307,658</td>
<td>3%</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>99,810</td>
<td>1%</td>
<td>96,329</td>
<td>1%</td>
<td>102,718</td>
<td>1%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>8,853,564</td>
<td>100%</td>
<td>10,208,111</td>
<td>100%</td>
<td>10,083,289</td>
<td>100%</td>
</tr>
</tbody>
</table>

(Source: SA Annual Tourism Reports)

KwaZulu-Natal (KZN) is ranked 5th out of 9 provinces in South Africa according to the number of foreign arrivals. However, when the bed nights spent in the province are taken into consideration then the KZN moves up into 3rd place (refer to Table 9).

**Table 9: Total Foreign Tourism Bed Nights spent in SA - Provincial Distribution**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Western Cape</td>
<td>15,680,688</td>
<td>19,971,821</td>
<td>16,961,520</td>
</tr>
<tr>
<td>3.</td>
<td>KwaZulu Natal</td>
<td>5,840,370</td>
<td>6,297,103</td>
<td>6,631,958</td>
</tr>
<tr>
<td>4.</td>
<td>Mpumalanga</td>
<td>3,702,292</td>
<td>4,010,610</td>
<td>4,417,748</td>
</tr>
<tr>
<td>5.</td>
<td>Limpopo</td>
<td>2,994,981</td>
<td>3,224,761</td>
<td>3,454,139</td>
</tr>
<tr>
<td>6.</td>
<td>Free State</td>
<td>2,651,085</td>
<td>2,963,599</td>
<td>3,445,399</td>
</tr>
<tr>
<td>7.</td>
<td>Eastern Cape</td>
<td>2,684,244</td>
<td>3,371,051</td>
<td>3,304,452</td>
</tr>
<tr>
<td>8.</td>
<td>North West</td>
<td>1,365,628</td>
<td>1,685,022</td>
<td>1,735,841</td>
</tr>
<tr>
<td>9.</td>
<td>Northern Cape</td>
<td>527,669</td>
<td>528,101</td>
<td>544,184</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>55,802,589</td>
<td>66,852,503</td>
<td>66,153,430</td>
</tr>
</tbody>
</table>

(Source: SA Annual Tourism Reports)

21.
With reference to Table 9 on the previous page, KZN’s share of total bed nights spent in South Africa was 10.0% in 2011. Gauteng and Western Cape account for over 64% of the total bed nights spent in South Africa.

### Table 10: Total Foreign Direct Spend (excluding capital expenditure) per Province

<table>
<thead>
<tr>
<th>Province</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gauteng</td>
<td>R21,6bn</td>
<td>R26,9bn</td>
<td>R27,5bn</td>
<td>0,6bn</td>
</tr>
<tr>
<td>Western Cape</td>
<td>R16,6bn</td>
<td>R21,7bn</td>
<td>R18,2bn</td>
<td>-3,5bn</td>
</tr>
<tr>
<td>KZN</td>
<td>R 6,2bn</td>
<td>R 6,8bn</td>
<td>R 7,1bn</td>
<td>0,3bn</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>R 3,9bn</td>
<td>R 4,4bn</td>
<td>R 4,7bn</td>
<td>0,3bn</td>
</tr>
<tr>
<td>Limpopo</td>
<td>R 3,2bn</td>
<td>R 3,5bn</td>
<td>R 3,7bn</td>
<td>0,2bn</td>
</tr>
<tr>
<td>Free State</td>
<td>R 2,8bn</td>
<td>R 3,2bn</td>
<td>R 3,7bn</td>
<td>0,5bn</td>
</tr>
<tr>
<td>Eastern Cape</td>
<td>R 2,9bn</td>
<td>R 3,7bn</td>
<td>R 3,5bn</td>
<td>-0,2bn</td>
</tr>
<tr>
<td>North West</td>
<td>R 1,4bn</td>
<td>R 1,8bn</td>
<td>R 1,9bn</td>
<td>0,1bn</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>R 0,6bn</td>
<td>R 0,6bn</td>
<td>R 0,6bn</td>
<td>0,0bn</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>R59,2bn</td>
<td>R72,6bn</td>
<td>R70,9bn</td>
<td>-1,7bn</td>
</tr>
</tbody>
</table>

(Source: Compiled from SA Annual Tourism Reports 2009 - 2010)

### Table 11: Domestic Tourism Inter and Intra Provincial Distribution 2009 - 2011

<table>
<thead>
<tr>
<th>Province</th>
<th>% Inter 2009</th>
<th>% Intra 2009</th>
<th>% Inter 2010</th>
<th>% Intra 2010</th>
<th>% Inter 2011</th>
<th>% Intra 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>KwaZulu-Natal</td>
<td>12.0%</td>
<td>88.0%</td>
<td>25.0%</td>
<td>75.0%</td>
<td>25.0%</td>
<td>75.0%</td>
</tr>
<tr>
<td>Eastern Cape</td>
<td>22.0%</td>
<td>78.0%</td>
<td>42.0%</td>
<td>58.0%</td>
<td>48.0%</td>
<td>52.0%</td>
</tr>
<tr>
<td>Gauteng</td>
<td>68.0%</td>
<td>32.0%</td>
<td>46.0%</td>
<td>54.0%</td>
<td>38.0%</td>
<td>62.0%</td>
</tr>
<tr>
<td>Western Cape</td>
<td>34.0%</td>
<td>66.0%</td>
<td>29.0%</td>
<td>71.0%</td>
<td>28.0%</td>
<td>72.0%</td>
</tr>
<tr>
<td>Limpopo</td>
<td>47.0%</td>
<td>53.0%</td>
<td>50.0%</td>
<td>50.0%</td>
<td>49.0%</td>
<td>51.0%</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>38.0%</td>
<td>62.0%</td>
<td>76.0%</td>
<td>24.0%</td>
<td>75.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Free State</td>
<td>54.0%</td>
<td>46.0%</td>
<td>58.0%</td>
<td>42.0%</td>
<td>72.0%</td>
<td>28.0%</td>
</tr>
<tr>
<td>North West</td>
<td>70.0%</td>
<td>30.0%</td>
<td>64.0%</td>
<td>36.0%</td>
<td>64.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>35.0%</td>
<td>65.0%</td>
<td>68.0%</td>
<td>32.0%</td>
<td>56.0%</td>
<td>44.0%</td>
</tr>
</tbody>
</table>

(Source: Compiled from SA Domestic Tourism Reports)

A section on Domestic Tourism is now included in the SA Annual Tourism Reports. Based on the figures it is assumed that the drop in the number of domestic tourism trips in 2010 was mainly as a result of economic constraints. The majority of domestic tourists spend their holidays with friends and relatives (unpaid accommodation) rather than in paid accommodation. Inter-provincial is travel between provinces and intra-provincial is travel within the province by local residents. The main domestic tourism source markets for the Eastern Cape are: Gauteng, Free State and Western Cape.
In 2011, some 75% of the domestic tourism trips in KZN were intra-provincial and 25% inter-provincial. Table 12 below clearly indicates a decline in annual trips and day trips in KZN and hence it is likely that many local tourists decided to stay home or closer to home in 2011 due to the impact of the recession. In KZN intra-provincial tourism is mainly country-to-coast and coast-to-country movement.

**Table 12: Domestic Trips to KwaZulu-Natal**

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of annual trips</td>
<td>8.8m</td>
<td>8.3m</td>
<td>7.1m</td>
</tr>
<tr>
<td>Total revenue generated from annual trips</td>
<td>R6.4bn</td>
<td>R5.6bn</td>
<td>R5.5bn</td>
</tr>
<tr>
<td>Total number of day trips</td>
<td>42.1m</td>
<td>56.0m</td>
<td>37.1m</td>
</tr>
<tr>
<td>Total revenue generated from day trips</td>
<td>R12.0bn</td>
<td>R16.3bn</td>
<td>R13.5bn</td>
</tr>
</tbody>
</table>

(Source: Compiled from SA Domestic Tourism Reports)

**Table 13: Contribution of tourism to KZN GDP in 2011**

<table>
<thead>
<tr>
<th>TOTAL REVENUE GENERATED</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Revenue generated from foreign tourism</td>
<td>R 7.1bn</td>
</tr>
<tr>
<td>Total Revenue generated from domestic tourism</td>
<td>R 5.5bn</td>
</tr>
<tr>
<td>Total Revenue generated from domestic day trips</td>
<td>R13.5bn</td>
</tr>
<tr>
<td><strong>Total Contribution of tourism to GDP of KZN</strong></td>
<td><strong>R26.1bn</strong></td>
</tr>
</tbody>
</table>

(Source: Compiled from SA Annual Tourism Reports)

13.3 uMhlathuze Tourism Overview

It appears that the contribution of tourism to the local economy of uMhlathuze has never been calculated. It also appears from the literature search and from interviews with municipal officials, that a Tourism Sector Plan or Tourism Strategy to drive tourism growth and development in the municipal area has never been prepared. Hence it is assumed that tourism in Richards Bay is mainly domestic tourism, business tourism, some cruise tourism, and VFR (visiting friends and relatives).

The SA Domestic Tourism Survey undertaken in 2001 is the only report that attempted to provide an indication of tourist distribution traveling within the KZN province. According to this survey some 3.7% of all domestic tourism trips taken in KZN were to the North Coast in 2001. This survey has never been repeated.
Tourism Development Plans for Richards Bay 2012 - 2017

The tourism related development projects identified in the uMhlathuze Municipal IDP 2012 - 2017 are listed in the table below:

Table 14: Tourism Related Projects identified in the IDP

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>BASIC DESCRIPTION</th>
<th>ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beach Development</strong></td>
<td>This project will be aimed at creating primary events along the two particular coastlines</td>
<td>R200 million</td>
</tr>
<tr>
<td>• Alkantstrand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Port Durnford</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Waterfront Development</strong></td>
<td>This project will pay attention to historic, current and future development patterns. The waterfront is to provide an excellent opportunity where it will be possible to find a place to live, enjoy art, recreate, shop or relax by the water. This will be a place for multi-use activities, improvement of social interaction and a sense of community. Some kind of a community image should be formed and architectural themes should play an important role.</td>
<td>Unknown</td>
</tr>
<tr>
<td>• Richards Bay</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>International Convention Centre (ICC)</strong></td>
<td>The International Convention Centre will have to offer superb facilities and quality services with conference, function and exhibition venues that can accommodate major events both internationally and nationally. Aimed to be a modern one-stop business centre with related support services, facilities for the physically disabled, glass-fronted sound proof translation and press booths, on-site medical assistance, security and many other amenities.</td>
<td>R650 million</td>
</tr>
</tbody>
</table>

(Source: uMhlathuze Local Municipality IDP 2012/2017)

The above projects tend to support the assumption that Richards Bay is primarily an industrial city with some tourism potential rather than a holiday destination with some industry potential.
Table 15: Jobs from Tourism

<table>
<thead>
<tr>
<th>JOBS FROM TOURISM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal: Develop uMhlathuze as a Tourism Destination</strong></td>
</tr>
<tr>
<td><strong>Priorities</strong></td>
</tr>
<tr>
<td>• Obtain the endorsement of the Municipality and UTA for the Strategic Tourism Development Plan</td>
</tr>
<tr>
<td>• Provide a fully representative and community aligned uMhlathuze Tourism Association with the resources necessary for effective destination marketing management and development</td>
</tr>
<tr>
<td>• Develop a tourism marketing strategy</td>
</tr>
<tr>
<td>• Develop a network of strategically placed information offices and kiosks supported by a system of consistent, attractive and informative signage</td>
</tr>
<tr>
<td>• Build a reputation as a tourist friendly destination by establishing Customer Service training</td>
</tr>
<tr>
<td>• Develop a cultural tourism package linked to the Ngoye Triangle</td>
</tr>
<tr>
<td>• Promote the development of products such as Zumanzi Nature Reserve, and others</td>
</tr>
<tr>
<td><strong>Goal: Develop and Implement a Tourism Marketing Strategy</strong></td>
</tr>
<tr>
<td><strong>Purpose</strong></td>
</tr>
<tr>
<td>• To make and implement recommendations on branding, marketing and communication in order to present uMhlathuze as an attractive tourism destination to appropriate market segments</td>
</tr>
<tr>
<td><strong>Anticipated Outcomes</strong></td>
</tr>
<tr>
<td>• Strategy and action plan for profiling and marketing uMhlathuze</td>
</tr>
<tr>
<td>• Recommendations in branding as well as external and local communication</td>
</tr>
<tr>
<td>• Marketing themes around e.g. sea and sand, water based recreation, culture and heritage, birding, etc</td>
</tr>
<tr>
<td>• Significantly increased visitor numbers, longer stays leading to increased spend</td>
</tr>
<tr>
<td>• Increased number of tourism linked job opportunities</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
</tr>
<tr>
<td>• Adopt a plan and make appropriate budget provision</td>
</tr>
<tr>
<td>• Implement and review annually</td>
</tr>
</tbody>
</table>

The City of uMhlathize has identified tourism as a lead sector contributing to local economic development and job creation. The goals, purpose, priorities, outcomes and activities are listed above in Table 15.
GOAL: PROVIDE VISITOR INFORMATION AND SIGNAGE

<table>
<thead>
<tr>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide visitor information, extend visitor stay, increase spending and encourage return visits. The visitor centre will act as the destination management centre for uMhlathuze.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anticipated Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A strategically located information centre and outlets at visitor key points</td>
</tr>
<tr>
<td>Attractive, informative and legal tourism signage</td>
</tr>
<tr>
<td>Increased visitor satisfaction, enhanced reputation, growth in numbers and length of stay</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine sites for visitor centre and outlets</td>
</tr>
<tr>
<td>Establish visitor information centre</td>
</tr>
<tr>
<td>Design displays and materials</td>
</tr>
<tr>
<td>Conclude agreement with kiosk landlords, train staff where appropriate</td>
</tr>
<tr>
<td>Establish signage working group</td>
</tr>
<tr>
<td>Working signage standards and policy with local stakeholders</td>
</tr>
<tr>
<td>Upgrade signage accordingly</td>
</tr>
</tbody>
</table>

Goal: Tourism Training

<table>
<thead>
<tr>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both equity and self-interest dictate the necessity for ensuring that tourism opportunities and benefits reach the community at large. It is therefore essential to offer business and employment opportunities to local people particularly the disadvantaged</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anticipated Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular needs assessments</td>
</tr>
<tr>
<td>Suite of training and capacity building programs to meet local needs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct needs assessments, research existing training resources</td>
</tr>
<tr>
<td>Design skills development program</td>
</tr>
<tr>
<td>Implement and review</td>
</tr>
</tbody>
</table>

It is clear from the list in Table 15 that the uMhlathuze LM has every intention of developing the full potential of tourism.
14. **Broker-Local-Tourist Impact Assessment Model**

Tourism systems involve interactions between people and place in destinations that include small communities and villages, self-contained resorts, and cosmopolitan cities.

From a sociological perspective, tourism systems have three kinds of actors:

1) *Brokers*
2) *Locals*,
3) *Tourists*

On the next page the “broker-local-tourist” (BLT) interactive model is illustrated in a diagram with explanatory notes (*Miller and Auyong, 1998*).

*Tourism brokers* consist of persons who in one way or another pay professional attention to tourism. Main sub-categories include 1) private sector brokers who are part of the tourism industry, 2) public sector brokers at various levels of government who study, regulate, and plan tourism, and 3) social movement brokers in non-governmental, non-profit, and environmental organizations who address tourism issues. Tourism brokers of these and other types do not necessarily agree on the kind of tourism that is “best” for tourism planning systems. Indeed, broker-broker conflict is as common as cooperation.

*Locals* consist of persons who reside in the general region of a tourism destination, but do not derive an income from tourism or engage in its management and regulation.

Finally, *tourists* consist of persons of domestic and international origin who travel for relatively short periods of time for business, recreation, and educational purposes before returning home.
Tourism can, however, be designed to improve the lives of tourists and those who are part of the tourism industry, conserve natural resources and protect the environment, and not offend locals. For this to occur, tourism brokers in government, business, and non-governmental organizations will need to cooperate to make tourism sustainable and safe. It will also be necessary for tourists and locals to adopt “best practices” that underwrite cross-cultural communication and respect for the environment. In the eyes of many, it is time for all to abide by a system *tourism ethic*. Such an ethic might reasonably incorporate Aldo Leopold’s (1949: 224-225) famous caution about natural resource use based solely on economic self-interest:

“A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.”

Through the implementation of responsible management, planning, and education policies, together with the diffusion of a tourism ethic, tourism and development can be shaped to reflect the best tendencies of humanity.
14.1 **Wind Farm Impact Assessment on Locals**

Locals are comprised of residents as identified in the Visual Impact Assessment:

The following sensitive viewers or viewpoints were identified:

- Residents of Richards Bay and Empangeni;
- Residents on surrounding farms;
- Residents of rural villages and traditional areas;
- Viewpoints in surrounding protected areas;
- Motorists using the N2 and other main roads in the region.

**Richards Bay/Empangeni**

Although the wind farm will be visible from a distance, residents of Richards Bay and Empangeni are not likely to object to the facility especially when they understand the advantages associated with clean renewable energy. Furthermore, the landscape of Richards Bay is already impacted by industrial development.

**Residents on surrounding farms**

The site is located among sugar cane farms. Although there are a number of lodges and guesthouses in the region which offer accommodation to tourists and travelers, the wind turbines are not likely to discourage them from visiting the area and staying overnight in farm stay accommodation.

**Residents of rural villages and traditional areas**

Residents of rural villages and traditional areas have already been exposed to ugly power lines crisscrossing the landscape. By comparison wind turbines are much more pleasing to the eye. Although the Visual Impact Assessment has applied a sensitivity rating to the above locals (residents), by contrast from a tourism sector perspective based on international research studies, there is no evidence to support that wind farms have had any negative impact on tourist volumes (*Refer to 14: Study on the Economic Impact of Wind Farms on Scottish Tourism*). From a local perspective when confronted with some of the advantages of wind energy supply residents have actually become supportive.
14.2  Frequently Asked Questions about Wind Energy

What is a wind turbine?
A wind turbine converts the power of the wind into electricity for use by homes and businesses.

How big is the wind turbine?
The typical tower of a wind turbine is 80 meters (262 ft.) high. The blades that catch the wind are typically 35-50 meters (115-165 ft.) long.

Are wind turbines noisy?
No. You can hold a conversation at the base of an operating turbine without any trouble; and at a distance of 1,000 feet, the noise level from an operating turbine is similar to that from a typical refrigerator in your kitchen.

Do wind turbines affect wildlife?
Most wildlife is not affected by wind farms. Birds and bats occasionally collide with wind turbines, as they do with other tall structures such as houses, radio and TV antennae, and power lines. We conduct studies prior to constructing a wind farm to ensure the project does not negatively impact wildlife. These impacts are generally low and not considered a major concern.

Can I still hunt on my property?
Yes. Hunting can usually continue on the property near the wind turbines. In order to protect the safety of the wind farm employees, we may need to restrict hunting in particular areas during specific times of the year.

What kind of tax revenue do wind farms provide?
A 100 MW facility (50-70 turbines) will comprise over $200 million in investment. These improvements will normally provide significant tax revenue for rural communities. Often, these revenues serve to lower property tax rates for other residences and commercial properties.
Will my property tax increase?
Any property taxes on the wind farm itself will be paid by the owner of the wind farm. In most cases, however, the Tax Assessor bills us separately for the taxes attributed to the facility. If this is not the case, we will work out an agreement where we pay the wind farm taxes directly so the burden does not pass to the landowners.

Is wind energy cost effective?
Yes. To run a conventional power generation facility, the operator must purchase fuel at varying prices, creating volatility in the cost of energy produced by that facility. In areas with a robust wind resource, wind-generated electricity is very competitive with, and sometimes less expensive than, conventional generation sources such as natural gas.

How much land does a wind farm require?
On average, approximately 1-2 acres of land will be taken out of production for every turbine. This includes the turbine pad, the road going up to the turbine, and any ancillary facilities necessary for the turbine’s operation. The rest of the land can continue to be used for any purpose that doesn’t interfere with the wind power facility, such as farming and grazing.

How long is the useful life of the wind farm and what happens after the wind farm has reached its useful life?
A typical wind farm’s useful life is 20 years. When a facility is no longer operating, it is the project owner’s responsibility to remove the facility. This consists of removing all improvements made on the property to 3 feet below the surface. Additionally, the land will be restored as closely as feasible to its original condition.

Will I still be able to use my property for farming or ranching?
Yes. A typical wind farm takes less than 1-2% of the land out of production.

Do wind turbines affect property prices?
There is no credible evidence showing that wind farms negatively impact property values. Agricultural property values are normally based upon the income produced on the property.

31.
Because a wind turbine on your property will dramatically increase the income produced on it, a wind turbine should actually have a positive impact on the value of the property. Every independent study of this issue has found that wind turbines do not reduce property values and in fact, sometimes increase them.

**NB**: This list of frequently asked questions was compiled by Element Power from surveys undertaken with their clients and stakeholders in various countries where they are involved with wind energy installations. Element Power is a global renewable energy developer that develops, acquires, builds, owns and operates a portfolio of wind and solar power generation facilities worldwide (www.elpower.com).

**Some observations from wind energy research reports**

- The positive attitude of most tourists to green energy, including wind, is an important factor and could be used to advantage. However, attitudes to energy generation and the issues involved may change over time and it is important to keep abreast of this.

- Only a minority of tourists appear to be negative about wind turbines and believe that they spoil the landscape. However, this is a significant minority.

- Tourists’ reaction to wind turbines appears to be affected by how and where they see them. Certain images have stimulated a majority negative reaction. Proximity may be an issue. In general, they prefer to see them in the distance and preferably off-shore.

- Generally tourists prefer smaller wind farms to larger ones. However, there is no firm evidence to judge their likely reaction to having a lot of individual turbines or small clusters dotted across a landscape. The impression from the research is that they may prefer to see them in one place rather than everywhere.

- Wind turbines are not seen as negatively as some other structures in the countryside, notably pylons.
A survey into tourists’ views of a proposed wind farm in the Sedgemoor district of Somerset was undertaken by the Centre for Sustainable Energy (CSE) in 2002. The survey was commissioned in order to answer the concerns of a number of people in Brean, Sedgemoor, about a proposed wind farm having a detrimental impact on the local tourism industry. CSE worked with Quality Fieldwork (QF) to design and deliver a questionnaire aimed at tourists staying in and visiting the area. The survey was designed to assess their likely attitudes towards a wind farm, and whether or not it would deter them from visiting the area.

QF conducted the interviews face-to-face on location, on a random basis, between Mondays and Saturdays during August 2002. Respondents were screened to ensure that they did not live in the Brean area. The interviews were conducted at various points in the local area where visitors were likely to be found. A sample size of 300 people (300 separate interviews) was set as the minimum size of group recommended for statistical significance, with results being representative of the total tourist population for the area within a margin of +/- 5.7%. In fact, a total of 331 people were interviewed.
CSE were therefore confident that the survey results were representative of all tourists visiting the Brean area.

The only segmentation applied to the survey was that a minimum of 10% of people interviewed should be between the ages of 10 and 17. Data regarding the actual profile of the visitors to the area was not available in order for representative samples to be drawn from different types of visitors. However, the random nature of the interviewing process, coupled with a very low refusal rate, indicates that the sample can be assumed to be representative. The actual refusal rate was not monitored, but interviewers reported both a high degree of willingness to be approached and a very high degree of interest in the subject.

The key question that the survey set out to answer was whether or not the proposed wind project would have a negative impact on the number of tourists who come to visit the area. The key finding of the survey was that there would be no significant difference to the number of tourists visiting the area. Of the 331 people who were interviewed:

- 91.5% said that the proposed development would make no difference to how often they visit the area
- 3.6% said they would visit less often
- 3.9% said they would visit more often
- 0.9% had no opinion

With this sample size, these findings can be taken to be representative of the total tourist population for the area within a margin of +/- 5.7%.

Other key findings were:

- The majority of respondents supported wind technology, with a total of approximately 8 out of 10 in favour or strongly in favour of wind power
- Approximately 7 out of 10 respondents viewed the proposed wind farm as a positive development for the area
14.4 *Wind Farms are good for Tourism*

Wind farms are a positive draw for tourists and most tourists would not boycott areas of natural beauty just because a wind farm was positioned nearby according to researchers at the University of the West of England (UWE). Professor Cara Aitchison, Professor in Human Geography at UWE, has given evidence as an expert witness at a major Public Inquiry into the proposed wind farm development at Fullabrook, North Devon.

Professor Aitchison said, “In stark contrast to the views expressed by North Devon District Council my research demonstrates that the development of a wind farm in North Devon would not have an overall detrimental impact on tourism. “The vast majority of tourists we surveyed in North Devon (87%) stated that the presence of a wind farm would neither encourage nor discourage them from visiting. Of the remaining 13%, slightly more would be encouraged to visit because of the presence of a wind farm. The majority of North Devon respondents thought that the wind farm would have no overall impact on the quality of their experience. “Indeed, slightly more tourists felt that the wind farm would have a positive impact on their experience compared to those who felt it would have a negative impact. The majority of tourists actually thought wind farms could be tourist attractions in their own right.”

Professor Aitchison has been an expert witness on tourism at the Public Inquiry held in Barnstaple, North Devon from 28 November – 11 January. The Inquiry relates to the proposal by Devon Wind Power Limited to develop a wind farm of 22 turbines, each 110 metres high from base to blade tip, with a combined installed capacity of 66 Megawatts. The site is on approximately 446 hectares of land around Fullabrook Down, between Barnstaple and Ilfracombe in North Devon, where tourism forms a major part of the local economy. As the proposed development exceeds 50MW the application will be determined by the Secretary of State for Trade and Industry and the Public Inquiry has offered an opportunity for all parties put forward their views on the proposal.

As well as the main parties, Devon Wind Power and the local authority, North Devon District Council, the Inquiry has also heard from environmental organisations and political parties on both sides of the debate.

35.
The Green Party, the Green Business Forum and Friends of Fullabrook, a local campaigning group established to promote the development of renewable energy, have supported the proposal whilst the Campaign for the Protection of Rural England, the Campaign Against Wind Turbines and the local Liberal Democrat MP have voiced their opposition.

As a result of being sited in upland and coastal areas with high wind speeds, most wind farms are also located in or near popular rural leisure and tourism locations. In spite of this close physical relationship between wind farms and tourism there has been limited previous research examining tourists' attitudes towards the location of wind farms in or near areas that they visit for holiday and/or leisure. However, the impact of turbines upon tourism is increasingly becoming one of the factors considered at public inquiries into wind farm proposals.

Professor Aitchison undertook extensive research to examine the potential impact of wind farm development in North Devon on tourism and supplemented her findings with research conducted in Cornwall and Wales where wind farms have been established for over a decade. A total of 379 day visitors and tourists were interviewed using a face-to-face questionnaire with the research examining the impact of wind farms on visitor numbers, the tourism experience and tourist expenditure.

The results of the research, together with Professor Aitchison's evidence presented to the inquiry may also inform future planning inquiries relating to the development of wind farms in other parts of the country. The decision on Fullabrook wind farm application is expected to be announced by the Secretary of State for Trade and Industry later this year.

14.5 Wind Farm Tourism Impact Assessment Studies in South Africa

Currently no tourism impact assessment studies have been undertaken in South Africa. This means that we have to be guided by research studies undertaken in other parts of the world. The studies featured in this SEIA are considered the most appropriate.
14.6 The Economic Impacts of Wind Farms on Scottish Tourism

One of the most comprehensive studies undertaken on the impact of wind farms on tourism was completed in March 2008. Glasgow Caledonian University was commissioned in June 2007 to assess whether Government priorities for wind farms in Scotland are likely to have an economic impact – either positive or negative – on Scottish tourism. The objectives of the study were to:

- Discuss the experiences of other countries with similar characteristics.
- Quantify the size of any local or national impacts in terms of jobs and income.
- Inform tourism, renewables and planning policy.

(A) Introduction

Scottish Ministers are committed to generating at least 50% of Scotland's electricity from renewable sources by 2020, with an interim milestone of 31% by 2011. The 2011 target implies around 5,000 megawatts of installed capacity and wind farm developments are expected to make a significant contribution. In turn, these developments will affect the country’s landscape, which is often cited by tourists as their primary motivation for visiting Scotland. In light of the tourism industry and the Scottish Government’s shared ambition to grow tourism revenues by 50% in the 10 years to 2015, it is vital that the potential impact of wind farms on tourism is accurately assessed, to allow informed, appropriate decisions to be made on their suitability and location.

(B) Methodology

The methodology for the study had four main elements:

1. Desk-based review of around 40 studies in the UK and Ireland, in addition to international reports from Denmark, Norway, Sweden, Germany, the United States, and Australia.
3. Internet survey of 600 people in the UK and 100 people in the US who had been or who were likely to go to Scotland in the near future.
4. Geographical Information Systems (GIS) analysis to identify the number of tourists that are likely to see wind farms during their stay: while traveling (by road) or from their accommodation.

(C) Summary of Key Findings

The overall conclusion of this 305-page research report is that the Scottish Government should be able to meet commitments to generate at least 50% of Scotland's electricity from renewable sources by 2020 with minimal impact on the tourism industry's ambition to grow revenues by over £2 billion in real terms in the 10 years to 2015.

- In total, three-quarters of tourists felt wind farms had a positive (39%) or neutral (36%) impact on the landscape.
- If the renewables target is met via substantial wind farm development, Scottish tourism revenues in 2015 are forecast to be 0.18% lower (£7.6 million) than they would have been if there were no wind farms in Scotland.
- This change in tourism expenditure would mean that in 2015 there will be £4.7 million less Gross Value Added in the Scottish economy than there would have been in the absence of all the wind farms that would be required to meet the renewables target through wind power alone (at 2007 prices). This effect will be offset or reinforced by other economic or environmental impacts of wind farms and a part of the adjustment may have already occurred.
- Four parts of Scotland were chosen as case-study areas and the local effects were also found to be small compared to the growth in tourism revenues required to meet the Government’s target. The largest local effect was estimated for ‘Stirling, Perth & Kinross’, where the forecasted impact on tourism would mean that Gross Value Added in these two economies will be £6.3 million lower in 2015 than it would have been in the absence of any wind farms (at 2007 prices).

The majority of this activity is expected to be displaced to other areas of Scotland, and the local effect on tourism should be considered alongside other local impacts of the developments – such as any jobs created in the wind power industry itself. Based on survey responses and research findings, the report makes recommendations for the planning authorities which could help to minimize any negative effects of wind farms on the tourism industry.
From a tourism stand point, larger developments may be preferable to a number of smaller developments, particularly when they occur in the same general area. There is also an opportunity for the renewables and tourism industries to work together to protect certain areas from development (e.g. National Parks or National Scenic Areas) and to market other areas - with a number of developments – as “green” to make use of the positive perceptions of wind farms.

(D) Findings from the Literature Review

The number and quality of published studies of actual measured effects is very limited. The evidence that exists from the UK suggests there is often strong hostility to developments at the planning stage on the grounds of the scenic impact and the perceived knock on effect on tourism. However developments in the most sensitive locations (such as National Parks and National Scenic Areas) do not appear to have been given approval so that where negative impacts on tourism might have been a real outcome there is, in practice, little evidence of a negative effect.

There is, however, evidence that – on balance – individuals (tourists or otherwise) place a higher value on the landscape when a wind farm is not included in the view than when it is. What is less clear from the literature though, is whether this change in value affects a tourist’s decision to visit that location (i.e. whether there is a resultant impact on tourism). Over time hostility to wind farms appears to lessen and they become an accepted even valued part of the scenery, particularly by those closest to them.

In some countries an established wind farm appears to be able to act as a tourist attraction in the same way as a hydro-electric power station. Overall, there does not appear to be any robust evidence to suggest a serious negative economic impact of wind farms on tourism.

(E) Findings from the GIS Study

Not all tourists in an area will see a wind farm or stay in a room with a view of a wind farm at a time when it is visible.
The GIS study was concerned with establishing the numbers who could have visibility, and has used a theoretical maximum exposure with no reductions made to account for tourists staying in rooms where wind turbines are in a line of sight but not visible at the time. This could occur when tourists are only in their rooms when weather or daylight conditions reduce visibility. For example, low cloud or fog could shield hill tops and turbines from view.

The first element of the GIS study consisted of developing a Zone of Visual Impact (ZVI) for each wind farm that was identified as constructed, with permission for construction or currently under consideration after formal application. It did not cover those at the scoping stage or those that had been rejected. The ZVI’s for the areas were combined and each location (square 40m x 40m) in the area that could see 4 or more wind farms at less than 15km, was identified. The combined ZVI was layered onto maps containing the important roads in the area and the length of each road in the ZVI calculated. Similarly the CZVI was combined with a map of all accommodation in the area and the proportion of affected bed spaces calculated.

To assess the percentage of tourists affected the number of tourists on each road in the area had to be estimated. This was achieved by extracting from the Scottish Road Data Base monthly figures of traffic flows and taking the difference between summer and winter flows. A number of adjustments were made to account for likely routes and for Scottish tourists heading south. By estimating the number of tourists on roads unaffected by wind farms, the proportion affected could be calculated.

(F) Findings from the Internet Survey

The economic impact was believed to result from two main sources. First the intercept study was designed to identify the change in numbers that would go to affected locations. When combined with the proportion of tourists traveling in affected locations it was possible to estimate the proportionate drop in expenditure.

Second the internet survey attempted to provide information on the proportionate drop in the prices that would be paid for accommodation if the view from a hotel gained a view of a wind farm. In the study 600 tourists from the UK and 100 tourists from the US were asked to state how much extra they would pay for a room with a specific view.
The only significantly different sub-group was the young who found the wind farms far more acceptable. Both UK and USA tourists found the pylons the most objectionable of the structures. Wind farms led to a serious decline in value more marked in the UK than in the US sample. Very surprisingly, when the respondent was unaware that a farm had been extended, the drop in value of the extension was relatively small.

The consistency of this result coupled with the dislike of a large number of farms suggests that a policy of concentrating developments and making these large would be preferable to a large number of smaller farms scattered over a wide area.

In the short term, given a linear demand function, the fall in willingness to pay for a “room with a view”, results in an equal fall in the mean price actually paid by the tourist. Consequently, the proportionate fall in expenditure on accommodation can be calculated. When combined with the proportion of rooms in an area affected by wind farm development estimated in the GIS analysis, estimates of tourist expenditure lost in the accommodation sector in each area, were obtained. The internal study also had three questions concerned with the perception of the number of wind farms and the reaction to them. This showed that:

- The public believed that wind farms were more prevalent than was factually the situation
- That they were unaware of attempts to keep them from the most scenic areas
- That a substantial number (17%) claimed that they were less likely to visit if more wind farms are built. This was less marked amongst the young

In the view of the researchers a substantial proportion of the 17% were registering what might be termed a protest vote. They do not like the impact of wind farms on the scenery (like the majority of respondents) and indicate that position in the only way they can, by identifying withdrawal. In comparison those actually intercepted have a better idea of the actual numbers and very wide dispersion and the relatively benign impact. The key then is for tourist bodies to ensure that the perception of the situation is closer to the reality and to get people to Scotland.
Findings from the Economic Multiplier Analysis

The economic analysis is based upon three core pieces of information for each area and Scotland:

- The number of tourists
- The typical expenditure of these tourists
- The size and structure of the local economy

The proportion of tourist expenditure lost in each region as a result of wind farms was calculated by combining the results of the Intercept survey and the GIS roads analysis and applied to the estimated tourist expenditure in the region. The resulting change in expenditure was then fed into the DREAM model of the region to provide estimates of the employment and income (gross value added) lost.

Conclusions and Planning Implications

Whilst it is clear that there is an impact, this impact is very small. It might however be further reduced if a Tourist Impact Statement was made a part of the planning process. This statement would require an analysis of:

- Tourist flows on roads that are located in the ZVI of the wind farm
- Numbers of bed spaces within the same ZVI

It seems reasonable to hypothesize that the location of farms that can be viewed from major tourist routes like the M74 and A9 should be avoided, or should be developed alongside measures to screen them from view e.g. landscaping with woodlands. The evidence is overwhelming that wind farms reduce the value of the scenery (although not as significantly as pylons). The evidence from the Internet Survey suggests that a few very large farms concentrated in an area might have less impact on the tourism industry than a large number of small farms scattered throughout Scotland. However the evidence, not only in this research study but also in research by Moran commissioned by the Scottish Government, is that Landscape has a measurable value that is reduced by the introduction of a wind farm.
Concentration of wind farms might have serious implications for a limited number of individual households. A system of compensation by developers might go some way to placate those most negatively affected.

(I) General Attitudes of Current and Potential Visitors towards Wind Farms

This research sought to assess the opinions of tourists towards wind farms in order to supplement the economic impact findings. The findings in the four case study areas included:

- In total, 75% of tourists felt wind farms had a positive or neutral impact on the landscape, of which:
  - 39% of respondents were positive about wind farms,
  - 36% had no opinion either way, and
  - 25% were negative (including 10% who were strongly negative).

- Compared to 10 other structures in the landscape (including pylons, mobile phone masts and fish farms) wind farms received the joint lowest number of “no impact” responses. Opinions on wind farms amongst tourists appear to be heavily divided relative to other structures with the majority of respondents (64%) offering either pro- or anti-wind farm views. The level of negative response to wind farms (25%) was the fourth highest of the 11 structures; the level of positive responses (34%) was third highest.

- Overseas visitors seemed to be more positive about wind farms than domestic tourists.

- 68% of tourists were positive about the statement “A well sited wind farm does not ruin the landscape” with a further 12% neutral.

- 48% of visitors were positive about the statement “I like to see wind farms” with a further 24% neutral.

- Importantly, respondents that had seen a wind farm were less hostile than those who had not.

- The results confirm that a significant minority (20% to 30%) of tourists preferred landscapes without wind farms. However of these only a very small group was so offended that they changed their intentions about revisiting Scotland.
The internet survey of current and potential tourists (600 based in the UK, 100 from the US) found that:

- The perception is that turbines are as prevalent in areas designated as areas of natural beauty as they are in other non-scenic parts of the country.
- The youngest respondents (ages 16-25) in general appear to think that wind farms have less of an impact than potential visitors in other age ranges.
- A much higher percentage of respondents indicated that they would not visit an area if a wind farm was constructed (17.8%) than was found in the intercept survey. It should be noted that compared to the results of the intercept survey, this estimate is less robust and should therefore be treated with caution, as, unlike the intercept study, respondents were not made aware of what constituted the “local area”. Instead, the result is indicative of the level of negative feeling some people have towards wind farms.
- As in the intercept survey, wind farms appeared to be more favoured by foreign tourists than UK visitors.
- Most individuals appear to prefer a landscape from their accommodation without a wind farm (63%) but there is also a substantial proportion that is neutral (28%) and a few who positively like wind farms (9%). Most people appear to believe that, from the hotel bedroom, it is better to face an open hillside, rather than a wind farm.
- There appears to be a diminishing marginal loss of value associated with increasing size of wind farms. In effect, it appears that once there has been an intrusion into the scenery, the effect on the value of the landscape of expanding the size of the wind farm is relatively small.

(J) **Economic Impacts**

(J1) **Sources of Economic Impacts**

Two main economic impacts may occur when a wind farm is constructed. First, there may be a change in the number of tourists going to an area. This was estimated using the responses to the intercept survey. Secondly, the views from some accommodation establishments will be affected by the construction of wind farms. Under certain assumptions, economic theory predicts that in the short run a change in demand for a “room with a view” will result in a proportionate change in the average price actually paid by the tourist.
Consequently, any rise or fall in expenditure on accommodation can be calculated using the findings of the internet survey. Bringing together the two effects allows the estimation of the net changes in tourism expenditure at the local and Scottish levels.

(K) Changes in Visitor Intentions (to Return)

The vast majority (93-99%) of tourists that had seen a wind farm in the local area suggested that the experience would not have any effect on their decision to return to that area, or to Scotland as a whole.

The net result of the changes in intentions at both the area level and nationally is therefore relatively small and not significantly different from zero in a statistical sense. Only when respondents were shown images of hypothetical extensions to the wind farm did they become negative in their responses. The extended development scenario at the area level shows a very small but statistically significant (at the 10% level) fall of 2.5% in the likelihood of revisiting an area and an even smaller (less than 0.5%) fall in the likelihood of revisiting Scotland. These are believed to be the maximum negative response that might be expected. Indeed, there were some tourists for whom the experience increased the likelihood of return rather than decreasing it.

The assessed change in likelihood combines both decreases (negative impacts) and increases (positive impacts). The report applies this percentage change in likelihood to the estimated number of tourists that will see a wind farm during their visit and assesses the related fall in expenditure.

(L) Changes in the Price of Accommodation

The results of the internet survey suggest that the average tourist is prepared to pay around 20-35% more for a room with an unspoilt view than they are for a room with a view of a wind farm. In the short run this will result in a corresponding fall in the price charged for the room. However, the vast majority of wind farms considered in this study (both current and proposed) did not affect the views from any accommodation.
As a result, the impact of wind farms on tourism revenues that may arise through changes in the price of accommodation – even in the short run – was found to be small. The fall in expenditure on accommodation across the four case study areas ranged from only 0.48% in ‘Caithness and Sutherland’ to 1.59% in ‘Dumfries and Galloway’.

(M) Modeling the Economic Impacts

The impact on tourism expenditure arising through both effects was calculated using Visit Scotland spending data and data submitted by local authorities in support of Grant-in-Aid submissions. This was then fed into the Detailed Regional Economic Accounting Model (DREAM) of the region to provide estimates of the employment and income (Gross Value Added) lost to each case study area and nationally. At the national level, DREAM is the same as published Scottish Government Input-Output tables.

(N) Impacts on Local Area Economies

This study identified all wind farms currently in operation or proposed (as at June 2007). While not all of these will be granted acceptance, it is recognized that there are a number of other applications at the scoping stage that might be built. The number of wind farms considered is greater than the additional capacity required to meet the Scottish Government’s targets for renewable energy. The results of the analysis compared to a scenario where there would be no wind farm developments in Scotland are shown in the table on the next page.

These results should be interpreted very carefully. They suggest that slower growth in tourism revenues caused by all current and proposed wind farms compared to a situation with no wind farms in Scotland, will result in a modest negative economic impact at a local level. By 2015, the effects tourism revenue and value added compared to what they would have been in the absence of any wind farms in Scotland – will vary depending on the area; ranging from £0.7 million less value added in ‘Caithness & Sutherland’, to £6.3 million less value added in ‘Stirling, Perth & Kinross’ (at 2007 prices). This is equivalent to saying that tourism revenues will support between 30 and 339 jobs fewer in these economies in 2015 than they would have in the absence of all the wind farms required to meet the current renewables obligation. Part of this adjustment will already have taken place.

46.
These estimates should not be considered in isolation – the effect of reduced tourism revenues may be offset or reinforced by other economic impacts. For example, the number of jobs and income arising in the construction and operation of each wind farm developed should be considered when assessing the total impact of all current and proposed wind farms on a local economy.

At the Scotland level, the total impact is not equal to all the local area effects added together. Those areas with fewer wind farms are likely to see greater increases in tourism than they would have otherwise and this will act to offset slower growth in other parts of the country. Only a negligible fraction of tourists will change their decision whether to return to Scotland as a whole because they have seen a wind farm during their visit.

This report estimates that if the renewables target is met via substantial wind farm development, Scottish tourism revenues in 2015 are forecast to be only 0.18% lower in 2015 than they would have been if there were no wind farms in Scotland. This change in tourism expenditure would mean that in 2015 there will be £4.7 million less Gross Value Added in the Scottish economy than there would have been in the absence of all the wind farms that would be required to meet the renewables target through wind power alone (at 2007 prices). These jobs are equivalent to £4.7m of Gross Value Added at 2007 prices.

In comparison to the current size of the tourism industry, the reduction in growth prospects is very small (0.1 per cent of tourism employment); compared to the economy as a whole they are smaller still. It should also be remembered that these are not job losses that will be felt instantaneously, rather it is a reduction in the number of jobs that will be created in future as a result of tourism spending. These impacts should not be considered in isolation from other impacts of wind farms on employment, the economy and the environment. The importance of substitution within Scotland should be noted: a bigger loss is estimated for ‘Perth, Kinross and Stirling’ than for Scotland as a whole. This can be explained in part because of the exclusion of residents of Scotland from the estimate of national impact – these people would be expected to continue to spend in Scotland even if they are put off visiting a particular area.
The local area estimate is also dependent on the maintenance of areas without, or with very few, turbines. If this is not the case then the local area effects are likely to be lower than currently estimated, whilst the impact on Scotland as a whole may be larger.

The report makes clear that all estimated impacts are a worst case scenario, for a number of reasons. The most important of these are:

- The research was based on reactions to hypothetical extensions to existing wind farms,
- The research assumed perfect visibility of wind farms, and
- Wind farms could prove to be a tourist attraction.

Planning Recommendations

This research has found that the negative impact of wind farms on tourism at national level is small and any reduction in employment in tourism will be less than the numbers currently directly employed in the wind power industry. However planning authorities may wish to consider the following factors to ensure that any adverse local impacts on tourism are minimized:

- The number of tourists traveling past en route to elsewhere,
- The views from accommodation in the area,
- The relative scale of tourism impact i.e. local and national
- The potential positives associated with the development
- The views of tourist organizations i.e. local tourist businesses or Visit Scotland.

In some cases this consideration would be greatly assisted if the developers produced a brief Tourist Impact Statement as part of the Environmental Impact Assessment. The core of the statement would be the tourist accommodation and the number of tourists on roads within the Zone of Visual Impact. However in tourist areas the developer might also be expected to generate proposals to make use of the positive aspects of the development.

At the national planning level the research in this report identifies that from a tourism viewpoint:
A number of wind farms in sight at any point in time may be undesirable. The loss of value when moving from medium to large developments is not as great as the initial loss. It is the basic intrusion into the landscape that generates the loss of value for tourists.

This suggests that from a tourism stand point, larger developments are preferable to a number of smaller developments, particularly when they occur in the same general area. Finally this research found that, in general, the public did not recognize that some areas had been protected from development. Currently those tourists who do find wind turbines an objectionable presence are most likely simply to move to another area in Scotland.

To ensure substitution opportunities it is important that areas are retained where turbine development is limited to supplying local needs in small remote communities. Smaller scale community projects clearly have an important role to play in meeting Scotland’s energy requirements.

The wilderness nature of any untouched areas should be publicized. Equally the research found some tourists positively attracted to wind turbines, particularly in quiet rural areas similar to Denmark. The research suggests that there may be an opportunity to market these areas as “green” and to view wind farm development positively. Of the case study areas Caithness would appear to be the most vulnerable to tourism losses and equally it is this area that has the greatest opportunity to promote itself as a centre for renewable energy. Overall the finding of the research is that if the tourism and renewable industries work together to ensure that suitably sized wind farms are sensitively sited, whilst at the same time affording parts of Scotland protection from development, then the impacts on anticipated growth paths are expected to be so small that there is no reason to believe that Scottish Government targets for both sectors are incompatible.
14.7 Wind Farm Impact Assessment on Brokers

In the context of this SEIA report, brokers are tour operators, accommodation providers, travel agents, restaurants, shops, entertainment, activities, events, conferences and attractions i.e. those product owners and service providers who derive an economic benefit from tourism. The question is would the proposed Richards Bay Wind Farm have any negative impact on future tourism related business?

Travel agents generate income from commissions received when they make reservations on behalf of their clients. Wind Farms are not likely to have any impact on outbound travel related business.

Restaurants survive mainly on local business. Visitors to Richards Bay such as business travelers, conference delegates, visiting friends and relatives, participants and spectators at local events, shoppers, holiday tourists, are not likely to suffer any loss of business because of a wind farm.

The Richards Bay waterfront is a tourist attraction visited by cruise liners carrying foreign tourist passengers. The waterfront is also the venue for water sport activities and events. The view of the wind turbines from the waterfront area is not likely to have any negative impact on these activities and events. The visual impact of the wind turbines is also not likely to have any negative impact on beach recreational activities and events.

Seven hotels, some 45 alternative accommodation establishments (B&B establishments, guesthouses, self-catering apartments, etc), and one caravan park are listed in the uMhlathuze visitors guide. Unfortunately the total number of available beds for visitors appears to be unknown. Generally 70% of guests staying in hotels are business travelers. A wind farm should have no negative impact on occupancies. Alternative accommodation providers are mainly occupied by business travelers and domestic tourists. The distance of the proposed Richards Bay Wind Farm facility from the City of uMhlathuze is such that it is highly unlikely that visitors would decide not to visit Richards Bay because of the visual impact. Friends and relatives (VFR) will visit regardless of wind farms wherever they are located.
Richards Bay is already heavily impacted by industrial development. The ambience of Richards Bay is that of an industrial city rather than a holiday destination. Hence, tourists who decide to visit Richards Bay are therefore unlikely to be deterred by the visual impact of wind turbines in the distance.

Farm Stay accommodation on the outskirts of Richards Bay offer country living for those visitors who prefer to stay overnight out of town. Wind turbines are likely to generate curiosity and could become a topic of interest. Wind turbines on a farm will generate supplementary income for the owners and are not likely to have any negative impact on guest occupancies. Most farmers who offer farm stay accommodation do so for the supplementary income rather than for hospitality reasons.

Coach and Microbus tour operators, and self-drive tourists driving along the N2, will not have much time to admire the landscape since their focus will be on the road, and their time spent within the study area is relatively short. The N2 highway on the north coast is very busy and it is unlikely that motorists will actually notice the wind farm as they pass. However, if they do notice the wind turbines then it is likely to stimulate interesting discussion and should not provide a reason why they would not visit the region again. The wind farm is therefore designated a low visual sensitivity. Short sections of the R34 will also provide extensive views of the wind farm, as will some of the rural roads (particularly the road that passes through the wind farm area).

The only protected area in the region which will potentially be affected is the Enseleni Nature Reserve which is located between 3 and 5km from the proposed site. However, there are few areas within this reserve from which the wind farm will be seen. The high trees of the indigenous forest in the reserve are likely to reduce visibility even more. Furthermore, there is no overnight accommodation in the nature reserve and so tourists and locals are day visitors. The Enseleni Nature Reserve is a 293-ha reserve established in 1948 midway between Richards Bay and Empangeni on the N2. It is a great spot for a day outing, following the trails between the coastal grassland and forest. With a rich plant life of mangroves, huge old wild fig trees and papyrus along the river bank makes this a small piece of paradise for birdwatchers and nature lovers alike.
With a small conference center and picnic and braai areas, this is an ideal place to spend a relaxing family outing. Named after the Nseleni River flowing through it, the name means “place of the badger” or “fair place”, and draining into Lake Nsesi on the outskirts of Richards Bay. Nseleni is a bird-lovers paradise. Wildlife includes wildebeest, giraffe, waterbuck, duikers, zebra, bushpig, impala, hippos and crocodiles.

The SEIA specialist interviewed a number of tour operators in the Eastern Cape with regard to the impact of wind turbines on protected areas especially state owned nature reserves. In the opinion of the tour operators wind turbines should not necessarily impact negatively on the environment and could become a talking point as part of environmental education. In the case of one well-known tour operator who specializes in conservation tourism he would include discussion on renewable energy and wind farms with his environmental awareness program which covers biodiversity conservation, identification of endangered plant species and carbon footprint, etc.
15. **Tourism Impact Assessment Significance Rating Scale**

The impact of a wind farm on tourism at the proposed Richards Bay site was assessed based on an adaptation of the Coastal & Environmental Services (CES) impact rating methodology incorporating the BLT Model and an analysis of elements that could be affected by the impact of a wind farm. These elements were assessed according to the level of influence that these ‘elements’ have on the decisions made by the three main role players in the tourism system i.e. brokers, locals and tourists. These 'elements’ include:

- The importance that the landscape has for tourism
- The importance that the seascape has for tourism
- The impact of a wind farm on accommodation near the site area
- The impact of a wind farm on recreational activity near the site area
- The impact of a wind farm on conferences and events hosted near the site area
- The impact of a wind farm on restaurants located near the site area
- The impact of a wind farm on attractions near the site area
- The impact of organized tours in the vicinity of the site area

The significance of the expected impact at the proposed wind farm site was then rated using the CES impact rating methodology (temporal scale). The significance of impact ranges from low, moderate, high to very high. **Low** significance means that the impact of wind turbines in the study area is unlikely to decrease the number of visitors significantly. **High** significance means that wind turbines could have a significant impact on the amount of people visiting the study area, i.e. the area could start losing its tourist appeal. As an example, wind turbines are unlikely to have any significance for friends and relatives visiting the area but could have considerable significance for nature-based tourists who generally select an area for its natural beauty, peace and tranquility. The impact assessment rating considers the **spatial extent** from a local wind farm site perspective. **Intensity** is rated according to the magnitude of the impact of a wind farm in relation to the sensitivity of the local tourism environment, and **duration** the time frame for which the impact will be experienced.
Brokers, locals and tourists have different perspectives, enjoy different experiences and value the environment for different reasons. Some may regard objects introduced into the landscape as intrusive or even visually obtrusive, whereas others may not. For example Eco-tourists would inherently have different levels of sensitivity towards a particular visual intrusion as opposed to leisure tourists who may be more concerned with the number of recreational facilities in the area rather than with the environment.

The impact of a wind farm on tourism from a broker and tourist perspective is only likely to receive a high significance rating if the wind farm is a blemish on the landscape or seascape. In some cases locals are providers of tourist accommodation (paid accommodation), in which case they are also brokers. In other cases locals are either a resident or a provider of unpaid accommodation to friends and relatives (VFR) in which case they are not a broker.

15.1 Designing a Significance Rating Methodology for a Tourism Impact Assessment

A comprehensive literature search has confirmed that currently there is no universal measurement or scientific methodology for assessing the impact of wind turbines on the tourism environment. Most studies in this regard have been based on an economic impact assessment e.g. would the installation of a wind farm reduce the number of visitors to the affected area. To undertake such an assessment requires access to relevant tourism statistics and in South Africa no performance related statistics exist for cities and towns unless they have captured their own local data e.g. total number of available beds for tourists, average room rates and bed night sales.

In the case of Richards Bay no such data has been collected. Therefore, the SEIA specialist has designed a significance rating matrix based on an adaptation of the CES significance rating scale and the incorporation of the Broker-Local-Tourist (BLT) model. This tourism impact assessment model is the first of its kind in the world and relies a lot on the independent assessment of the specialist. Whilst the model does not follow exactly the CES significance rating scale it attempts to factor in all the relevant considerations accepting that tourism is a multi-faceted system.
There is little that can be done to hide a wind farm and mitigation is therefore unlikely to have much effect on the significance rating with respect to the tourism impact assessment. Mitigation is mainly confined to education and awareness i.e. explaining the renewable energy story and promoting the advantages of wind turbines as a clean energy option. If it were possible to dismantle ugly electricity pylons and replace with wind turbines this would be a positive trade off benefit.

The Significance Rating Scale

<table>
<thead>
<tr>
<th>SIGNIFICANCE</th>
<th>DESCRIPTION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>An acceptable impact for which mitigation is desirable but not essential. The impact by itself is insufficient even in combination with other low impacts to prevent the development being approved. These impacts will result in either positive or negative medium to short term effects on the social and/or natural environment.</td>
<td>4-7</td>
</tr>
<tr>
<td>Moderate</td>
<td>An important impact which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in either a positive or negative medium to long-term effect on the social and/or natural environment.</td>
<td>8-11</td>
</tr>
<tr>
<td>High</td>
<td>A serious impact, if not mitigated, may prevent the implementation of the project (if it is a negative impact). These impacts would be considered by society as constituting a major and usually a long-term change to the (natural &amp;/or social) environment and result in severe effects or beneficial effects.</td>
<td>12-15</td>
</tr>
<tr>
<td>Very High</td>
<td>A very serious impact which, if negative, may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are unmitigatable and usually result in very severe effects, or very beneficial effects.</td>
<td>16-20</td>
</tr>
</tbody>
</table>
Table 16: Significance Statement Tourism Impact Assessment

<table>
<thead>
<tr>
<th>IMPACT</th>
<th>TEMPORAL SCALE</th>
<th>SPATIAL SCALE</th>
<th>SEVERITY IMPACT</th>
<th>RISK LIKELIHOOD</th>
<th>OR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without Mitigation</td>
<td>Medium term</td>
<td>2</td>
<td>Study Area</td>
<td>2</td>
<td>Slight</td>
<td>1</td>
</tr>
<tr>
<td>With Mitigation</td>
<td>Medium term</td>
<td>2</td>
<td>Study Area</td>
<td>2</td>
<td>Slight</td>
<td>1</td>
</tr>
</tbody>
</table>

Overall Significance without mitigation  Low
Overall Significance with mitigation  Low
NO-GO  N/A

The above significance statement takes into consideration the impact of the proposed Richards Bay Wind Farm on all the elements which comprise the tourism system. The tourism system incorporates an integrated multi-faceted industry which includes accommodation, attractions (natural, built, cultural, social), activities, entertainment, restaurants, shops, conferences, sporting and cultural events, protected areas, etc. The main players in the industry from the public and private sectors are brokers, locals and tourists (refer to BLT model on page 28). The significance statement is therefore based on an overall tourism impact assessment.

No-Go

From a tourism impact assessment perspective, based on the results of several research studies conducted in a number of developed countries, there appears to be no reason why the proposed Richards Bay Wind Energy project should not proceed. Hence, a No-Go significance rating is not applicable.

Significance Statement

From wind energy studies undertaken in many countries around the world, there appears to be no evidence indicating that wind farms have had a significant impact on reducing the number of tourists visiting an area especially in countries acknowledged for their scenic beauty and farm landscapes e.g. Scotland, Wales, United Kingdom and Denmark.
15.3 **Commentary on Mitigation**

The comments below extracted from Richards Bay wind energy specialist reports suggest various kinds of mitigation procedures.

**Agriculture**

From an agricultural stand point there is no objection to the project being implemented. However it is recommended that in the case of each turbine site, topsoil of a depth of up to one meter should be stockpiled at suitable sites for backfill and rehabilitation. Should the landowners require that construction roads be rehabilitated, a similar practice should be adopted. It is further suggested that this recommendation be made a condition of approval.

**Wetland**

It would seem that the proposed project could affect a number of important riparian forests. These perform an important role in attenuating surface water flows, while providing a series of differing habitats providing a corridor or network within the region. Local as well as national conservation assessments of the riparian associated Swamp Forest wetlands have also indicated that these systems are **Vulnerable**. During the assessment, it was found however the greatest potential impact was related to those proposed structures that are found within wetland / water course areas of their respective buffers. It is thus recommended that the layout be altered to accommodate the delineated systems together with a 50m buffer or that any structures be placed outside of the 1:100 floodline (whichever is greater). The latter guideline would also be a minimum requirement insisted upon by the Department of Water Affairs, when processing the required water use licenses.

**Visual**

This region can absorb the visual impact from a wind farm development since the landscape is changing rapidly as the towns of Empangeni and Richards Bay expand. Many large scale industrial developments are planned for the future of the region. The wind farm is congruent with the sense of place of the region.
Ecological

The overall development of a wind farm on the ecological environment will be negative, mainly due to a loss of vegetation. This loss of vegetation is also important for fauna as it constitutes habitat loss. Positive impacts include the active management of the alien vegetation on the site. Permits will be required for any plant Species of Special Concern that will have to be removed or destroyed in the construction phase. Invasive species should be monitored and controlled throughout the life of the development.

However, the general area surrounding the overall project study area is constituted by a number of land uses, mostly agricultural, residential or industrial. It has been noted that Empangeni town is situated immediately south of the project area with Richards Bay further to the east. As such, the landscape can be described as a mixture of these land uses, with agricultural viewsheds interspersed with industrial infrastructure dominating the visual landscape. Richards Bay is without a doubt an industrial city on the coast and not a prime holiday destination for foreign and domestic tourists. However, Richards Bay does have potential to develop the tourism sector.

15.4 The Port of Richards Bay

Richards Bay is SA's premier bulk port and the most modern. The Multi Purpose Terminal has six berths and an annual throughput capacity of 5.6 million tonnes. Although built in 1976 for the export of coal, it has since expanded into other bulk and breakbulk cargoes. During the 2011/12 financial year ended 31 March 2012, Richards Bay handled a total of 1,782 ships with a gross tonnage of 65,994,515. During the same year the Port handled 89,232,456 tonnes of cargo, of which 84,527,658t was bulk cargo.

By the early 1950's, in the wake of burgeoning South African industrial expansion, the need for new port facilities had become ever more pressing. The need for major expansion of export facilities was further emphasized by the Chamber of Mines that claimed there was a vast potential for South Africa's raw materials, provided adequate rail and port facilities capable of accommodating large vessels were available.
Prior to the mid 1970s the port complex of Richard's Bay, situated on the east coast of South Africa, was a large natural lagoon, home to the exuberant wildlife of the coastal region of Northern Kwa-Zulu Natal. In April of 1976 the port was officially opened; a one-time lagoon converted into a thriving 19m deep man-made port. Now it is the country's largest exporting port. **This confirms that Richards Bay and surrounds has already been earmarked for industrial development.**

The port occupies 2,157 ha of land area and 1,495 ha of water area at present, but has the potential of expanding when required, making Richards Bay potentially one of the largest ports worldwide. Richards Bay serves the coalfields of KwaZulu Natal and Mpumalanga Province as well as timber and granite exporters from as far away as the East Cape and Northern Cape Provinces. Since 2006 the port is handling an increasing variety of bulk and neo bulk cargo. Much of the general cargo has migrated away from Durban in recent years. Exports remain the main activity of the port. There are currently 21 berths in service including those at the privately operated Richards Bay Coal Terminal but excluding the dredger and tug berths. An additional coal berth is currently under construction. The port has extensive rail and conveyor belt systems servicing the berths from nearby factories and plants.

The port with its immediate region has become a popular call for international cruise ships because of the close proximity to game parks and the St Lucia World Heritage Site. Cruise ships make use of either the small craft berth or one of the normal cargo handling berths depending on the size of the ship. There is a modern marina adjacent to the tug and dredging berths at the small craft basin. Water sports and recreational facilities are available in the harbour at reserved places. The proposed Richards Bay wind energy project is not likely to impact negatively on these facilities.
16. **Summary and Conclusion Tourism Impact Assessment**

16.1 General Attitudes towards Wind Farms from Research Studies

Extensive research has been undertaken on people’s attitudes towards wind farms. Two interesting aspects keep on re-emerging. Firstly, there seems to be a broad acceptance and even a positive response towards wind farms. Planisphere (2004), for example, sites a survey by Auspol (2001) of Victorian residents (in Australia) which found that a majority of people describe wind farms they have seen with positive descriptions such as ‘interesting’ (93%), ‘graceful’ (73.8%) or ‘attractive’ (55.9%), while 33.8% described them as ‘industrial’ and 5.0% as ‘ugly’. Based on massive amount of research undertaken in Europe and the UK, CNDV (2006c) found that public perception towards wind farms is generally favorable, with only about 10% of respondents to surveys expressing negative sentiment about the visual impact of wind farms. Opposition to wind farms is usually experienced by residents living in the area where wind farms are proposed (Scenic Landscape Architecture 2006; Planisphere, 2004; Thayer, 2007).

Secondly, surveys have indicated that after construction wind farms were more favorably received by affected viewers than was the case prior to construction. For example, De Wan, Terence J and Associates (2007), sited a study undertaken prior to the construction of a wind farm, where 30% of the 345 people surveyed identified themselves as strong supporters, 36% were moderate supporters, and 35% were non-supporters. Following construction, the survey was repeated with the same group and the post-construction survey indicated that 52% were strong supporters, 31% were moderate supporters, and the number of non-supporters had dropped to 17%. Support for the project thus had risen from 2:1 in favor before construction to 5:1 in favor following construction. Half of the opponents became supporters.

Although the Public Participation Process conducted during the Scoping Phase of a wind farm assessment should not be confused with a perception survey, it does offer valuable insight into people’s opinions regarding a proposed wind farm, especially
those residing in the area. Comments from various stakeholders documented in various Scoping Reports, are repeated here as far as they pertain to the visual environment.

16.2 **Summarized Findings**

- There is often strong hostility to developments at the planning stage on the grounds of the scenic impact and the knock on effect on tourism. However the most sensitive locations do not appear to have been given approval so that where negative impacts on tourism might have been a real outcome there is, in practice, little evidence of a negative effect.

- There is a loss of value to a significant number of individuals but there are also some who believe that wind turbines enhance the scene.

- An established wind farm can be a tourist attraction in the same way as a nuclear power station. This of course is only true whilst a visit remains an unusual occurrence.

- Over time hostility to wind farms lessens and they become an accepted even valued part of the scenery. Those closest seem to like them most.

- Whilst there is an undoubted loss of value the effect on tourism in practice is extremely small. This possibly reflects the current limited nature of the exposure (e.g. 10 minutes in a 5 hour journey) and, as mentioned earlier, the effect of the planning system preventing seriously adverse developments.

- **Overall there is no evidence to support a serious negative impact of wind farms on tourism.**
The IRP (Integrated Resource Plan) process is a consultation process which aims to model the energy production of current energy supply infrastructure and to project the country future need for additional or substitute energy production based on projected future demand. The model integrates various types of energy production - coal, nuclear, hydro, solar, biomass and wind - as well as the different power consumption optimisation measures all based on economic and technical assumptions and / or experiences. Various scenarios are then modelled and considered, including various options in regards to the actual technologies to be used. The outcome will be a 20 year energy plan based on a compromise between affordability, feasibility, security and environmental aspects in such development strategy.

Currently the IRP caters mainly for the addition of coal fired power stations linked with a long term development plan for nuclear energy; renewable energy is left with a small allocation unlikely to stimulate the renewable energy industry or significantly contribute to reducing the carbon emissions of our country. South Africa has signed the Kyoto Protocol aimed at fighting climate change through the stabilization of the emission of green house gas and as committed itself to reduce its own emissions via the Long Term Mitigation Scenarios endorsed, as announced by President Jacob Zuma at Copenhagen in December 2009. Having all the necessary skills in the country, South Africa has a unique chance to create a new industry and related jobs through the promotion of renewable energies. Adopting a binding commitment of 25% for renewable energy also encourages foreign investment – taxpayers will not need to pay for it.

South Africa is vast country where there is hardly ever an instant when the wind doesn’t blow consistently somewhere in South Africa – this enables electricity generation at times when the energy is needed. Wind energy technology has been proven over many decades and scores of successful projects have been developed and built across the world. Countries like China, India and or USA offer concrete evidence that viable wind energy regimes, well exploited and developed, provide significant economic, social and industrial benefits to the respective countries.
Wind can de-risk the economy because wind is a free fuel unlike fossil fuels such as coal, oil, gas, uranium – fossil fuel prices fluctuate over time and add significant cost and uncertainty to the future viability of energy production. Renewable energy can create more jobs per MW than conventional sources of energy generation. Renewable energy also creates decentralized jobs such as in rural areas and delivers socio-economic development benefits. A significant element of the renewable energy industry can be localized in South Africa (construction, civils, electrical work, turbines, components, ancillary services) as many of the skills and infrastructures already exist. For the remaining elements that are not yet localised these components can be transferred during the development stages of the project.

Coal generated electricity is no longer cheaper than wind energy, coal supply is not infinite and its extraction costs are increasing substantially. Coal contributes heavily to carbon emissions and climate change, and coal fired power stations use significant amounts of water. Coal fired power generation uses large amounts of water - 2000 litre per MWhour produced. Unlike wind which only uses 1litre per MWhour produced. In a water-stressed country like South Africa this means that communities, agriculture and domestic consumers are competing directly with coal power stations for water.

17.2 Farmers can benefit from wind turbines on their land

A wind farm will provide a farmer with a guaranteed annual source of extra income for the length of his/her lease. Wind Farming is highly compatible with agriculture requiring less than 5% of land usage and thus having a proportionate impact on the ongoing farming activities. Turbines do not disturb livestock who continue to roam through the wind farm and graze. In fact some animals enjoy lying beside the base of the turbine as it provides shade for them! Wind farms also bring benefits to the local communities through job creation, energy security and money contributed back to the community generally through a Community Fund or Trust.

One 1.8 MW wind turbine at a reasonable wind speed site will produce over 4.7 million units of electricity each year, enough to meet the annual needs of over 1,000 households, or to run a computer for over 1,620 years. Contrary to perceptions that wind turbines are noisy, modern day wind turbines are not considered noisy.
Mechanical (gearbox/ generator) noise and vibration from modern day wind turbines is almost undetectable with the main sound being the aerodynamic swish of the blades passing the turbine tower. The design of the site layout will ensure that turbines are positioned with adequate spacing from houses or residential areas. As mentioned previously, animals and livestock ignore wind turbines, and continue to graze as they did before wind turbines were installed. Interestingly it is not uncommon to find cows and sheep resting or sheltering in the shade of the turbines.

The Environmental Impact Assessment (EIA) includes a comprehensive stakeholder consultation process as a prerequisite. This process includes community involvement, information evenings, and open communication with all local stakeholders and this plays a vital role in achieving neighbour/ community acceptance of a project. Any objections/ queries from neighbours will be made and assessed by the planning and environmental authorities via their standard process. Research has shown that just as many people like the appearance of wind turbines as dislike them. Preferably sites should not be selected in pristine areas or areas with high conservation status.

17.3 **Decommissioning a wind farm**

The lifespan of a modern turbine is about 20 years. As the end of the lease approaches, the operator of the wind farm will either make a decision to decommission the turbines or reapply to the planning authorities to keep the wind farm operational. The environmental authority will clearly stipulate the manner in which a wind farm must be decommissioned. Typically they will require all visible traces of the wind farm to be removed. This takes care of the turbines. Access roads can be removed, although it may be best to leave them for public or private usage. The concrete bases can also be removed, but it is often better to leave them under the ground, as this causes fewer disturbances. If the turbine bases are left they should be covered with stone or other indigenous material, and the site returned as closely as practicable to its original state. Wind energy technology is essentially reversible, and compared to the problems associated with decommissioning a nuclear power station, or a coal or gas fired plant, decommissioning a wind farm is straight forward and simple.

It is against this background that the Richards Bay Wind Energy facility will be assessed for its impact on the socio economic environment.
17.4 uMhlathuze Economic SWOT Analysis

The economy of uMhlathuze continues to experience one of the highest growth rates in the country, maintains its competitive advantage as a specialized bulk handling port, but the industrial landscape is still dominated by large capital-intensive primary producers. Despite the high growth rate, unemployment remains at 40%.

Table 17: uMhlathuze Economic SWOT Analysis

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Above average growth</td>
<td>• High poverty levels, 40% unemployment</td>
</tr>
<tr>
<td>• Large export-orientated primary producers</td>
<td>• Capital intensive big firms - few jobs</td>
</tr>
<tr>
<td>• Mineral resources</td>
<td>• Few SMEs</td>
</tr>
<tr>
<td>• Agriculture, forestry</td>
<td>• R Bay focus, Empangeni declining</td>
</tr>
<tr>
<td>• Regional commercial centre</td>
<td>• Container handling limitations</td>
</tr>
<tr>
<td>• Sophisticated infrastructure, esp. port</td>
<td>• Shortage of housing</td>
</tr>
<tr>
<td>• Serviced industrial land</td>
<td>• Poor education, skills</td>
</tr>
<tr>
<td>• Tourism assets</td>
<td>• Shortage of Technical skills</td>
</tr>
<tr>
<td>• Local partnerships</td>
<td>• Crime</td>
</tr>
<tr>
<td>• SMME support facilities</td>
<td>• Industrial pollution</td>
</tr>
<tr>
<td>• Tertiary education institutions</td>
<td>• Regulatory environment for SMMEs</td>
</tr>
<tr>
<td>• Large informal sector</td>
<td>• Market access for small farmers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>THREATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Value adding &amp; clustering around iron and</td>
<td>• HIV/Aids impact</td>
</tr>
<tr>
<td>titanium, aluminium auto components, wood</td>
<td>• Difficulty in retaining skills</td>
</tr>
<tr>
<td>products, port, ship repair, agri-processing</td>
<td>• National Skills Shortage</td>
</tr>
<tr>
<td>• IDZ</td>
<td>• Electricity costs in medium term</td>
</tr>
<tr>
<td>• Head-hunt specialist firms</td>
<td>• Exchange rate fluctuation</td>
</tr>
<tr>
<td>• Tourism, water sports, yachts, eco-tourism,</td>
<td>• Lower commodity prices</td>
</tr>
<tr>
<td>Zulu culture, heritage</td>
<td>• Global economic slowdown</td>
</tr>
</tbody>
</table>

(Source: uMhlathuze LED Strategy 2008 – 2011)

NB: Electricity costs in the medium term has been identified as a threat

The uMhlathuze LED Strategy 2008 – 2011 has identified the following priorities to stimulate local economic development with specific reference to industrial development and projects that will attract inward investment.
17.5 **LED Key Priorities**

- Accommodate future Port Expansion.
- Permit and encourage diverse land uses at appropriate locations to develop the economy.
- Ensure alignment with the district and governmental organizations in the interest of promoting tourism development without damaging the environment or ecology.
- Create opportunities for small emerging business at accessible locations by identifying nodes/investment points in both the urban and rural environment.
- Boost those economic sectors/activities that have the potential to grow and create employment and income. Promote tourism development without damaging the economy or ecology of the area.
- Accommodate public and private land development.

17.6 **LED Manufacturing Goals**

UMhlathuze will refocus its industrial development and SMME development program around the clustering potential offered by:

- titanium, iron and aluminium (and possibly ferrochrome) smelting and downstream products
- the harbour and shipping
- timber and agricultural products

17.7 **LED Manufacturing Priorities**

- The City and IDZ Company to investigate a clustering process with industry stakeholders to identify gaps and opportunities in downstream industries, supplier firms and supporting infrastructure
- Tailor the industrial recruitment priorities of the Municipality, and IDZ Company to fill gaps by targeting key firms from outside
- Align the local business development programs of SEDA, Municipality and ZCB and to encourage and support local entrepreneurs to fill these gaps by enhanced capacity, expansion and new ventures
66.

- Review the regulatory environment to reduce unnecessary obstacles and costs related to starting or expanding businesses of all sizes.

17.8 **LED Inward Investment Strategy**

- Market the City of uMhlathuze to local and international investors
- Economic developmental focus on projects that are viable, sustainable, environmentally and socially responsible
- Downstream beneficiation of local industry and creation of satellite industries e.g. SMME’s, BEE, Tourism, Harbour bound industry (such as Ports and Marina), IDZ
- Where projects involve infrastructure, the investment company must work jointly with the City of uMhlathuze
- Establish local and global involvement and partnerships in projects that are rooted in or benefit the City of uMhlathuze and the rest of the province
- Every investment must have a well articulated exit strategy

The key financial criteria for any investment should be based on a sound business case with sound economic merit, with the ability of the business to make acceptable profits (profits in excess of the cost of capital employed).

**Table 18: Employment Sectors**

<table>
<thead>
<tr>
<th>ECONOMIC SECTOR</th>
<th>% TOTAL (2001)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>24%</td>
</tr>
<tr>
<td>Community Services/ Social/ Personal</td>
<td>16%</td>
</tr>
<tr>
<td>Trade</td>
<td>13%</td>
</tr>
<tr>
<td>Financial/ Real Estate/ Business</td>
<td>10%</td>
</tr>
<tr>
<td>Agriculture/ Forestry/ Fishing</td>
<td>9%</td>
</tr>
<tr>
<td>Construction</td>
<td>8%</td>
</tr>
<tr>
<td>Transport/ Communication</td>
<td>7%</td>
</tr>
<tr>
<td>Households</td>
<td>6%</td>
</tr>
<tr>
<td>Mining/ Quarrying</td>
<td>5%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

*(Source: Statistics 2007)*
With reference to Table 18 on the previous page, it is quite clear that the economy of Richards Bay is dominated by industry related sectors such as manufacturing, trade, agriculture, forestry, fishing, construction, mining, and quarrying, which collectively accounts for 60% of employment opportunities. It is safe to say that industry related sectors are unlikely to be affected by the impact of a wind farm and in fact may benefit from the establishment of the proposed Richards Bay Wind Energy Project which will contribute to strengthening the existing electricity grid for the area.

17.9 **LED Agriculture Strategy** *(creating jobs through agriculture)*

**Goal**
Maximize the job creation potential of agriculture, through a partnership of local and provincial role-players.

**Priorities**
- Establish a stakeholder partnership with the capacity to facilitate the Implementation of the agricultural support plan.
- Negotiate a coordinated approach to support and development with all role players including commercial and rural farmers.
- Identify, promote and support the production of robust higher value cash crops suitable for small-scale farming.

**Partnership for Agriculture**

**Purpose**
UMhlathuze is not without agricultural development resources but external facilitation is needed to develop the proposals in the agricultural support plan further and establish a partnership of local role-players to lead, manage and implement them.

**Anticipated Outcomes**
- Coordinate body to implement support plan.
- Coordination of agricultural development activities.
- More effective support for agriculture informs stakeholder planning.
Activities

- Identify key role-players and potential resources.
- Workshop agricultural support plan with appropriate working groups.
- Formalize partnership and roles.

18. **uMhlathuze Competitive Strategy**

18.1 **Foreign and Local Investment Is the Key Driver of Economic Growth**

Competition for foreign and local investment funds is intense. Foreign direct investment in South Africa has been stagnant to a large degree. Most of the investment in uMhlathuze is from international companies with South African roots. Internationally, in parts of Europe and Australia, local government has shifted their attentions to investment facilitation, by outsourcing basic services to utility companies. National government is increasingly placing the burden on local government to increase their role in local economic development. Domestically, there is substantial competition for Foreign Direct Investment, using development corporations such as:

- Coega Development Corporation in Port Elizabeth
- Blue IQ in Gauteng
- Durban Investment Corporation
- Johannesburg Development Corporation

The Richards Bay IDC which has been the key catalyst to local economic development is shifting its focus to Africa. Comparatively cheap electricity supply is one of the key requirements for attracting foreign investment especially for manufacturing and processing plants e.g. aluminium smelters. A wind farm facility could play a major role in attracting inward investment especially if it could offer an alternative source of renewable energy without increasing the rates to local tax payers.

Mozambique and Maputo in particular have been identified as a major threat to Richards Bay for investment. The pros and cons are listed overleaf.
18.2 Mozambique and Maputo in particular are a major threat to Richards Bay for investment

Maputo’s pros

- Tax on turnover not profit
- Better return on investment than local investment
- More investor friendly
- Better access to politicians
- Industrious workers
- Cheaper power by 50%, but temporary
- Cheaper labour by 50% although paying 15x minimum wage
- Clean power from Cohora Bassa

Maputo’s cons

- Political risk is high
- Port infrastructure is not well developed, but may improve with the planned concessions
- General Infrastructure is poor
- Port requires substantial dredging to handle large ships
- High cost of living
- It should be noted that Africa will compete for investment with South Africa on an increasing basis

18. umhlathuze Spatial Development Framework 2011

The Spatial Development Framework of the City of Umhlathuze (11 February 2007), states that: “The detrimental environmental impacts of economic growth and development should be mitigated as far as possible. This does not mean that economic development and growth should not take place or that environmental management and conservation not be implemented, but rather that there should be a balance between the two”.
The construction of the proposed wind farm, with the appropriate mitigatory measures in place, will assist in the de-centralization of power production in South Africa, and create a local source of electricity within the Umhlathuze Local Municipality that will support expected population growth and economic development as a result of expansion of the port and population increase. Some of the spatial development goals of the City of Umhlathuze, in which regard the construction of this wind energy facility may contribute, are:

4) the expansion of the port and improvement of some existing road infrastructure,

5) permitting and encouraging diverse land uses at appropriate locations to develop the economy and,

6) optimization of the use of existing resources by discouraging long-line services.
According to the SDF (refer to the map on the previous page), the proposed site for projects (on the western side of the N2) has been identified as an expansion area and as commercial farmland of low ecological significance.

According to the SDF map, the site of the Richards Bay wind energy facility on the western side of the N2 contains open space linkage/buffer zones that should be subject to minimal disturbance to serve effectively is channels between conservation areas. These channels help improve the transfer of genetic material between populations of fauna and flora, thus improving the health and viability of sub-populations through increased genetic variation. Disturbance of these channels should be minimal.

It should be noted that the manufacturing and trade sectors contribute to over 50% of Richard’s Bay GGP. Manufacturing accounts for 24% of the jobs in Richards Bay, trade accounts for 13% and construction 8%.

The cost benefits of the proposed Richards Bay Wind Energy project are evaluated on the next page taking into consideration the Socio Economic Impact Assessment and certain information released by the Coega Industrial Development Zone (IDZ).
19. **Cost Benefits of the Proposed Richards Bay Wind Farm**

### 19.1 Long term benefits

- In contrast with fossil fuel fired and biomass fired power generation, wind generators require no water. The reality is that most parts of RSA will be experiencing severe water shortages by the year 2030.

- Fossil fuel power generation produces sulphides and sulphates that corrode farm fences, farm buildings and farm equipment. Wind power is clean.

- The cost of wind generation is currently typically 30% higher than fossil fuel generation. The price of fossil fuel generation is expected to rise by 25% per annum. It is self evident that within a few years wind power will be more cost effective than fossil fuel power.

- Farmers are paid a rental based on a percentage of the value of power generated, a useful additional income derived from a minimal use of land.

### 19.2 Coega IDZ

According to a newspaper report featured in The Eastern Cape Herald dated 27th November 2012, a total of R3.1 billion in renewable energy projects is in the pipeline at the Coega IDZ and its basket of investors includes wind, solar and bio-fuel energy industries. The supply of power would be included in the grid that the Nelson Mandela Bay metro would make available for investors in the IDZ.

In a press statement the Coega Development Corporation (CDC) said the planned wind and solar energy sites and other green investments were primed to contribute to the gross domestic product (GDP) of the country, lowering CO₂ emission levels, increasing the manufacturing base and creating sustainable jobs. Universal Wind has set up a wind measurement mast in Zone 12 of the IDZ to start collecting wind data. It planned to install a total of 20 wind turbines in the IDZ. The wind projects would contribute 200 megawatts to the national grid by 2015.
19.3 EU-Eastern Cape Renewable Energy Conference

Wind farm developers speaking at the EU-Eastern Cape Renewable Energy Conference convened in East London during November 2012, said rural communities living within a 50km radius of wind farms would receive equity which would be administered in the form of community trusts. Also, farmers who lease their land for the erection of wind turbines are also set to benefit from the multi-billion-rand industry.

The CEO of Innowind said communities living around the company’s three projects would own 25% equity in the business. They have formed community trusts in each community and they will own equity in the projects. The trusts would decide whether these funds will be used for the improvement of schools, SME development or tertiary education bursaries. Each wind farm is a centre of prosperity for each community.

Windlab, a Cape Town based company, is to start its Eastern Cape construction of the biggest project in the country’s renewable energy program in April 2012. Situated on six commercial farms near Bedford and Cookhouse, the 60 turbines will generate 140 megawatts of power in a project costing between R2-billion and R3.5-billion.

According to Windlab the massive project will create thousands of jobs in its two-year construction phase, with the 20-year operation phase also providing employment opportunities. And besides farmers, who will benefit from leasing their land for the turbines, and the communities living around Bedford and Cookhouse receiving 2.5% each of dividends, the general economy of the area will also profit.

As a result of the expected positive economic impact of the wind farm project the Hotel in Bedford is being rebuilt and more B&B’s are opening up.
20. **Socio Economic Impact Assessment Significance Rating Scale**

The impact of the proposed wind farm on the socio economic environment in and around the Richards Bay site was assessed based on an adaptation of the CES impact rating methodology and an analysis of socio economic elements that could be affected by the impact of a wind farm. These elements were assessed according to the level of influence that these ‘elements’ could have on the current and future economic development of Richards Bay and surrounds. The ‘elements’ assessed include:

- Assessing the impact of wind energy on industrial development
- Assessing the impact of wind energy on the Port of Richards Bay
- Assessing the impact of wind energy on the future expansion of Richards Bay
- Assessing the impact of wind energy on local residents
- Assessing the impact of wind energy on the social environment
- Assessing the impact of wind energy on employment
- Assessing the impact of wind energy on property prices
- Assessing the impact of wind energy on inward investment
- Assessing the impact of a wind energy facility on Richards Bay competitiveness
- Assessing wind energy as an alternative source of renewable energy for Richards Bay

The significance of the expected impact at the proposed wind farm site was then rated using the CES impact rating methodology (temporal scale). The significance of impact ranges from low, moderate, high to very high. **Low** significance means that the impact of wind turbines in the study area is unlikely to impact negatively on the socio economic environment. **High** significance means that wind turbines could have either a positive or negative impact on the socio economic environment e.g. it could encourage or discourage future infrastructure investment.

The impact assessment rating considers the **spatial extent** from a local wind farm site perspective. **Intensity** is rated according to the magnitude of the impact of a wind farm in relation to the sensitivity of the local socio economic environment, and **duration** the time frame for which the impact will be experienced.
It is worth noting that the establishment of the proposed Richards Bay Wind Energy Installation will contribute to strengthening the existing electricity grid for the area and will aid the government in achieving its goal of a 30% share of all new power generation being derived from Independent Power Producers (IPP).

20.1 Wind Energy and Employment

It is impossible to manufacture, build, install and maintain wind turbines without people. It is equally impossible to plan, gain permits for and supervise a wind farm without people. Unsurprisingly then, employment related to wind energy has also gone up strikingly in recent years.

The EU wind energy sector directly employed approximately 108,600 people in 2007. Including indirect employment, the wind energy sector employs 154,000 in the EU. A previous EWEA study on EU-15 employment found that wind energy directly employed 48,363 people in 2002 (EWEA, 2003). Direct employment has increased by 60,237 (125%) since then. On average, 12,047 new direct wind energy jobs have been created per year in the five-year period 2002-2007. In other words, 33 new people have been employed every day, seven days a week in the wind energy sector over the past five years. According to the EU study, 15.1 jobs are created for every MW of wind energy installed. This means that the Richards Bay wind energy installation of 55 wind turbines will generate 110 MW which will create approximately 1661 jobs.

Table 19: Wind Energy Sector Direct and Indirect Employment EWEA Study

<table>
<thead>
<tr>
<th></th>
<th>SHARE OF DIRECT EMPLOYMENT</th>
<th>DIRECT EMPLOYMENT</th>
<th>INDIRECT EMPLOYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind turbine manufacturing</td>
<td>37.0%</td>
<td>40,182</td>
<td>42,716</td>
</tr>
<tr>
<td>Component manufacture</td>
<td>22.0%</td>
<td>23,892</td>
<td></td>
</tr>
<tr>
<td>Wind farm development</td>
<td>16.0%</td>
<td>17,376</td>
<td></td>
</tr>
<tr>
<td>Installation, operation &amp; maintenance</td>
<td>11.0%</td>
<td>11,946</td>
<td></td>
</tr>
<tr>
<td>IPP/utilities</td>
<td>9.0%</td>
<td>9,774</td>
<td></td>
</tr>
<tr>
<td>Consultants</td>
<td>3.0%</td>
<td>3,258</td>
<td></td>
</tr>
<tr>
<td>R&amp;D/universities</td>
<td>1.0%</td>
<td>1,086</td>
<td></td>
</tr>
<tr>
<td>Financial</td>
<td>0.3%</td>
<td>326</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>0.7%</td>
<td>760</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>108,600</td>
<td>42,716</td>
</tr>
</tbody>
</table>
20.2 Designing a Significance Rating Methodology for a SEIA

A comprehensive literature search has confirmed that currently there is no universal measurement or scientific methodology for assessing the impact of wind turbines on the socio economic environment in a specific study area. Most wind energy studies have been based on noise and visual impact assessments as a requirement of the economic impact assessment (EIA) process.

Therefore, the SEIA specialist has designed a significance rating matrix based on an adaptation of the CES significance rating scale and the incorporation of data extracted from local IDP and LED documents. This SEIA model is the first of its kind in South Africa and perhaps in the world. The model relies a lot on the independent assessment of the SEIA specialist combined with relevant data extracted from other specialist impact assessment reports included in the same study. Whilst the model does not follow exactly the CES significance rating scale it attempts to factor in all the relevant considerations that should be included in the SEIA process.
### 20.3 The Significance Rating Scale

**The Significance Rating Scale**

<table>
<thead>
<tr>
<th>SIGNIFICANCE</th>
<th>DESCRIPTION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>An acceptable impact for which mitigation is desirable but not essential. The impact by itself is insufficient even in combination with other low impacts to prevent the development being approved. These impacts will result in either positive or negative medium to short term effects on the social and/or natural environment.</td>
<td>4-7</td>
</tr>
<tr>
<td>Moderate</td>
<td>An important impact which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in either a positive or negative medium to long-term effect on the social and/or natural environment.</td>
<td>8-11</td>
</tr>
<tr>
<td>High</td>
<td>A serious impact, if not mitigated, may prevent the implementation of the project (if it is a negative impact). These impacts would be considered by society as constituting a major and usually a long-term change to the (natural &amp;/or social) environment and result in severe effects or beneficial effects.</td>
<td>12-15</td>
</tr>
<tr>
<td>Very High</td>
<td>A very serious impact which, if negative, may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are unmitigatable and usually result in very severe effects, or very beneficial effects.</td>
<td>16-20</td>
</tr>
</tbody>
</table>
Table 20: Significance Statement Socio Economic Impact Assessment

<table>
<thead>
<tr>
<th>IMPACT WITH Mitigation</th>
<th>TEMPORAL SCALE</th>
<th>SPATIAL SCALE</th>
<th>SEVERITY OF IMPACT</th>
<th>RISK OR LIKELIHOOD</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without Mitigation</td>
<td>Medium term</td>
<td>2</td>
<td>Study Area 2</td>
<td>Moderate 2</td>
<td>Unlikely 1</td>
</tr>
<tr>
<td>With Mitigation</td>
<td>Medium term</td>
<td>2</td>
<td>Study Area 2</td>
<td>Slight 1</td>
<td>Unlikely 1</td>
</tr>
</tbody>
</table>

Overall Significance without mitigation: Moderate
Overall Significance with mitigation (refer to commentary below): Low

NO-GO: N/A

The above significance statement takes into consideration the impact of the proposed Richards Bay Wind Farm on the socio economic environment. The SEIA environment is comprised of all the relevant factors included in the uMhlathuze IDP and LED documents. These factors include industry sectors, Port of Richards Bay, future expansion, social environment, employment, local residents, inward investment, competitiveness, renewable energy, property prices, etc. The significance statement is therefore based on an overall socio economic impact assessment.

20.4 Commentary on Mitigation

General

From a socio economic perspective there are more positive than negative impacts with regard to the installation of a wind energy facility especially when they are in close proximity to industrial development like the Richards Bay region. However, because wind turbine installation is a ‘new thing’ in South Africa there is bound to be negative perceptions often based on unfounded concerns. Ten to twenty years from now wind farms will be part of the South African landscape as they are in most developed countries around the world.

The following comments extracted from the other Richards Bay Wind Energy specialist reports should be taken into consideration when evaluating mitigation options.
Noise Impact

Safetech were appointed to conduct a specialist noise impact assessment for the construction of the proposed Richards Bay Wind Energy project. The study considered the site location as described in the Draft Scoping Report (DEA Reference Number: 12/12/20/2837). A literature review and desktop modeling was conducted. Baseline monitoring was conducted of the ambient noise levels at the site. The results of the study indicate that the following conclusions can be drawn:

1) There will be a short term increase in noise in the vicinity of the site during the construction phase as the ambient level will be exceeded. The impact during the construction phase will be difficult to mitigate.
2) The impact of low frequency noise and infra sound will be negligible and there is no evidence to suggest that adverse health effects will occur as the sound power levels generated in the low frequency range are not high enough to cause physiological effects.

Construction Activities

a) The turbine placement will have to be redone to accommodate the 17 affected NSA’s.
b) The noise impact should be remodeled when the micro-siting of the turbines take place.
c) All construction operations should only occur during daylight hours if possible.
d) No construction piling should occur at night. Piling should only occur during the day to take advantage of unstable atmospheric conditions.
e) Construction staff should receive “noise sensitivity” training.
f) An ambient noise survey should be conducted during the construction phase.

Operational Activities

The noise impact from the wind turbine generators should be measured during the operational phase, to ensure that the impact is within the recommended rating limits.
Traffic Noise

The N2 is a busy highway but residents living in close proximity to the highway should be used to noise generated by passing traffic. By comparison noise generated from wind turbines will be minimal.

21. Summary and Conclusion of the SEIA

Wind energy is cost effective. To run a conventional power generation facility, the operator must purchase fuel at varying prices, creating volatility in the cost of energy produced by that facility. In areas with a robust wind resource, wind-generated electricity is very competitive with, and sometimes less expensive than, conventional generation sources such as natural gas. In contrast with fossil fuel fired and biomass fired power generation, wind generators require no water. The reality is that most parts of RSA will be experiencing severe water shortages by the year 2030. Fossil fuel power generation produces sulphides and sulphates that corrode farm fences, farm buildings and farm equipment. Wind power is clean. The price of fossil fuel generation is predicted to rise by 25% per annum. It is self evident that within a few years wind power will be more cost effective than fossil fuel power.

A wind farm will provide farmers with a guaranteed annual source of extra income for the length of their lease. Wind Farming is highly compatible with agriculture requiring less than 5% of land usage and thus having a proportionate impact on the ongoing farming activities. Turbines do not disturb livestock which continue to roam through the wind farm and graze. In fact some animals enjoy lying beside the base of the turbine as it provides shade for them! Wind farms also bring benefits to local communities living within a 50km radius of wind farms through job creation, energy security and money contributed back to the community generally through a Community Fund or Trust.

Conclusive evidence collected from international wind energy research studies tend to confirm that wind farms have had no negative impact on tourist numbers.

The proposed wind energy electricity generating facility with a combined generation capacity of up to 110 MW from the installation of 39 wind turbines, strategically located to serve the Richards Bay IDZ and areas identified for future expansion, would go a long
way towards positioning Richards Bay as an attractive and viable area for investment and infrastructure development.

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