

**MODDERFONTEIN WIND ENERGY FACILITY (WEF), NORTHERN AND
WESTERN CAPE PROVINCE**

**SOCIAL IMPACT ASSESSMENT:
SPECIALIST STATEMENT BASED ON UPDATED SIA REPORT**

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1. INTRODUCTION

1.1 Background to initial Karoo Renewable Energy Facility study

In 2010, Savannah Environmental (Pty) Ltd, as Environmental Assessment Practitioners (EAP), was appointed by South African Renewable Green Energy (Pty) Ltd. (SARGE) to conduct an Environmental Impact Assessment (EIA) for the proposed establishment of the Karoo Renewable Energy Facility which consisted of both a wind energy facility component and a photovoltaic solar facility component, as well as associated infrastructure on a site located approximately 34 km south of Victoria West in the Northern Cape Province.

The proposed project fell within the Ubuntu Local Municipal area, which forms part of the Pixley Ka Seme District Municipality. A small section of the study area (farm Phaisantkraal and bordering properties) fell within the Beaufort West Municipal area in the Western Cape Province.

In 2010, Savannah Environmental (Pty) Ltd. undertook the Environmental Impact Assessment (EIA) process for the proposed wind energy facility and a photovoltaic solar facility component, as well as associated infrastructure. The EIA process was concluded in 2011 and as part of the EIA, a SIA Report¹ was submitted. The applicant, South African Renewable Green Energy (SARGE) obtained authorisation in 2012.

1.2 Details of the Karoo Renewable Energy Facility

The Karoo Renewable Energy Facility comprised the proposed construction and operation of a commercial renewable energy facility consisting of both a wind energy facility component and a photovoltaic solar facility component, as well as associated infrastructure. A broader area of approximately 200 km² was considered within which the facility was to be constructed. The proposed facility was planned to have a generating capacity of approximately 350MW and included:

- Up to 150 wind turbines and concrete foundations to support them (~300MW);
- An array of photovoltaic (PV) panels (~50MW);
- Cabling between the project components, to be laid underground where practical;
- An on-site substation to facilitate the connection between the facility and the grid;
- An overhead power line (132kV) of ~6km in length feeding into the Eskom electricity network at the existing Skietkuil/Biesiespoort Substation;

¹ Batho Earth (2010). Proposed Karoo Renewable Energy Facility on a site near Victoria West, Northern Cape Province: Social Impact Assessment – To be referred to as the initial study.

- Internal access roads; and
- A workshop area for maintenance and storage.

The project was proposed on portions of the following farms which are located approximately 34 km south of Victoria West:

- Nobelsfontein 227;
- Annex Nobelsfontein 234;
- Ezelsfontein 235;
- Rietkloofplaaten 239;
- Modderfontein 228; and
- PhaisantKraal 1 (Western Cape).

The power line for the facility would have fed into the Eskom electricity network at the Skietkuil/Biesiespoort Substation located within the study area at the time.

1.3 Background to non-substantive amendment application

Following the above authorisation, Savannah Environmental then lodged an application for a non-substantive amendment to (splitting of) the original authorisation on behalf of the applicant. In this regard, the authorised facility was proposed to be split into three phases, namely:

- Phase 1: Noblesfontein Wind Energy Facility (50 turbines of up to 50 MW);
- Phase 2: Noblesfontein Photovoltaic Facility (Photovoltaic panels with a capacity of up to 50 MW); and
- Phase 3: Modderfontein Wind Energy Facility (then indicated as 100 turbines of up to 300 MW).

The Modderfontein Wind Energy Facility (WEF) that formed part of the Environmental Authorisation then included the following infrastructure:

- 100 Wind Turbines with a total generating capacity of 300 MW;
- An on-site substation;
- Foundations to support both the turbine towers;
- Cabling between the project components;
- An overhead power line;
- Internal access roads;
- Small offices and/or workshop building (this infrastructure was already constructed as part of Phase 1);
- Laydown area (this infrastructure was already constructed as part of Phase 1).

The properties affected by this proposed development include the farms Modderfontein, Phaisantkraal 1 and Portion 3 of the farm Nobelsfontein 227.

Savannah Environmental again submitted the necessary reports to the DEA. No new information to that provided within the original final Environmental Impact Assessment Reports were presented in the re-submitted documentation. The splitting of the original authorisation was then approved.

1.4 Background to application for extension of environmental authorisation

In 2015 until 2016, the Terramanzi Group (Pty) Ltd. lodged an application for extension of the environmental authorisation for the Modderfontein WEF (198 MW) on behalf of the applicant.

As part of this request, a specialist statement with regards to the social impacts and environment was provided in 2016². It was concluded that based on the review of the historical and additional documentation, no new or additional social impacts other than those indicated in the original SIA³ would occur. Therefore, it was acceptable from a social perspective that the Environmental Authorisation be further extended by 3 years (to 2020) and that no additional application and/or studies in terms of the social environment was required at that stage.

An application for extension was granted for 2 years on the premise that the receiving environment and by association, the impacts on the receiving environment, may have changed to such a significant degree that a new application would be required.

In 2020 it was again requested that the authorisation be further extended. This was granted until 2022. The application for extension included a maximum of sixty-seven (67) Wind Turbine Generators (WTGs) with a total generating capacity of 201 MW using turbines with a generating capacity of up to 3MW.

1.5 Background to the amendment undertaken in 2021

Now in 2021, the Terramanzi Group (Pty) Ltd. is assessing the technical specification upgrades to the Modderfontein Wind Energy Facility, located in the Beaufort West REDZ which is referred to as the Part 2 Amendment Application for the Modderfontein WEF.

² Batho Earth (2016) Modderfontein Wind Energy Facility (WEF), Northern and Western Cape Province: Amendment Application for the Extension of the Validity Period of the Existing Environmental Authorisation for the Modderfontein Wind Energy Facility: Specialist Statement: Social Impact Assessment

³ Batho Earth (2010). Proposed Karoo Renewable Energy Facility on a site near Victoria West, Northern Cape Province: Social Impact Assessment

The technical specification upgrades to the existing EA would include the following:

- Up to 34 WTGs with a total generating capacity of 140MW (cluster 1) and 50.4MW (cluster 2);
- A total output of 190.4MW; and
- WTGs with a generating capacity of up to 5.6 MW;

The proposed development will thus be an approximately 50% reduction in turbine density.

The project is located within a Renewable energy development zone (REDZ) which are geographical areas where wind and solar photovoltaic power development can occur in concentrated zones.

2. PURPOSE OF THE UPDATED SIA REPORT AND SOCIAL SPECIALIST STATEMENT

Based on the historical background provided above, the purpose of this document is to provide a concise update on the initial study⁴ undertaken in 2010 based on the change of scope from the Karoo Renewable Energy Facility and from the original Environmental Authorisation (EA dated February 2012 and EA Extension dated February 2020) to the current Part 2 Amendment Application for the Modderfontein WEF. This would include the following:

- Provide an update of the socio-economic environment and characteristics of the receiving environment where applicable;
- Provide the findings of the concise desktop social assessment undertaken as part of the amendment;
- Review the original SIA rating based on the technical changes to the original study; and
- Provide a social specialist statement as part of the conclusions and recommendations of the document.

This document is thus a brief follow-up study on the 2010 SIA, as well as the specialist social statement provided in 2016.

3. DEFINITION OF A SOCIAL IMPACT ASSESSMENT

Burdge (1995) describes a Social Impact Assessment as the "...systematic analysis in advance of the likely impacts a development event (or project) will have on the day-to-day life (environmental) of persons and communities." A SIA therefore attempts to predict the

probable impact of a development (before the development actually takes place) on people's way of life (how they live, work, play and interact with one another on a daily basis), their culture (their shared beliefs, customs and values) and their community (its cohesion, stability, character, services and facilities), by:

- Appraising the social impacts resulting from the proposed project;
- Relating the assessed social impacts of the project to future changes in the socio-economic environments that are not associated with it. This would serve to place the impacts of the project into context;
- Using the measurements (rating) to determine whether the impacts would be negative, neutral or positive;
- Determining the significance of the impacts; and
- Proposing mitigation measurements.

An SIA is thus concerned with the human dimensions of the environment, as it aims to balance social, economic and environmental objectives and seeks to predict, anticipate and understand the potential impacts of development.

The usefulness of an SIA as a planning tool is immediately clear, in that it can assist the project proponent to conceptualise and implement a project in a manner which would see the identified negative social impacts addressed through avoidance or mitigation and the positive impacts realised and optimised. It would also allow the community to anticipate, plan for and deal with the social changes once they come into effect. In this sense then, the SIA is an indispensable part of the EIA, the Environmental Management Plan (EMP) and any participative activity (e.g. community involvement in mitigation and monitoring during planning and implementation).

4. METHODOLOGY

During the initial study undertaken in 2010, the following approach was followed:

- The scope of the assessment was determined. The site and some surrounding farms were visited to enable the consultants to familiarise themselves with the socio-economic environment.
- A literature review was undertaken which was followed up in 2016.

⁴ Batho Earth (2010). Proposed Karoo Renewable Energy Facility on a site near Victoria West, Northern Cape Province: Social Impact Assessment

- Primary and secondary data were gathered and analysed. Such data included maps, census data, internet searches, and municipal documents published by the Pixley Ka Seme District Municipality and the Ubuntu Local Municipality.
- Information was gathered and social issues identified during the public participation process. In addition, a questionnaire aimed at obtaining site specific information was distributed to explore and verify specific issues applicable to the project.

The current approach for the amendment of the original study and specialist social statement included a desktop study with additional literature reviews. The updated IDP of the Ubuntu Local Municipality was again reviewed.

The anticipated impacts to be expected during the construction and operational phases that were assessed during the 2010 study was updated and re-assessed. This document will thus highlight the changes in impacts anticipated and will include the amended rating based on the perceived impacts.

4.1 Variables

The following variables were assessed (Burdge, 1995) as part of the initial Social Impact Assessment:

- Population impacts;
- Community/institutional arrangements;
- Conflicts between local residents and newcomers;
- Individual and Family level impacts;
- Community infrastructure needs; and
- Intrusion impacts.

For assessing the impacts associated with the amended project scope, the same variables as those of the initial assessment were reviewed. These variables relate to the construction and operational phases of the proposed project.

4.2 Significance Criteria

The following rating approach were used for the initial study. This rating approach is described below and was again used for the 2021 updated study:

CATEGORY	DESCRIPTION
Nature	A description of what causes the effect, what will be affected, and how it will be affected.
Extent	Whether the impact will be local (limited to the immediate area or site of

CATEGORY	DESCRIPTION
	<p>development) or regional.</p> <p>A value between 1 and 5 will be assigned as appropriate (1 = low and 5 = high).</p>
Duration	<p>Where it will be indicated whether:</p> <ul style="list-style-type: none"> • The lifetime of the impact will be of a very short duration of 0 – 1 years: Assigned a score of 1 • The lifetime of the impact will be of a short duration of 2 – 5 years: Assigned a score of 2 • Medium term of 5 – 15 years: Assigned a score of 3 • Long term (more than 15 years): Assigned a score of 4 • Permanent: Assigned a score of 5
Magnitude	<p>This is quantified on a scale of 0-10, where</p> <ul style="list-style-type: none"> • 0 is <i>small</i> and will have no effect on the environment; • 2 is <i>minor</i> and will not result in an impact on processes; • 4 is <i>low</i> and will cause a slight impact on processes; • 6 is <i>moderate</i> and will result in processes continuing but in a modified way; • 8 is <i>high</i> where processes are altered to the extent that they temporarily cease; and • 10 is <i>very high</i> and results in complete destruction of patterns and permanent cessation of processes.
Probability	<p>The probability of occurrence describes the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1-5, where:</p> <ul style="list-style-type: none"> • 1 is <i>very improbable</i> (probably will not happen) • 2 is <i>improbable</i> (some possibility, but low likelihood) • 3 is <i>probable</i> (distinct possibility) • 4 is <i>highly probable</i> (most likely) • 5 is <i>definite</i> (impact will occur regardless of any prevention measures)
Significance	<p>The significance shall be determined through a synthesis of the characteristics described above and can be assessed as <i>low, medium or high</i>.</p> <p>The significance weightings for each potential impact are as follows:</p> <ul style="list-style-type: none"> • Less than 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area) • 30-60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated) • More than 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area) <p>The significance is calculated by combining the criteria in the following formula:</p> $S = (E+D+M)P$ <p>S= Significance weighting E= Extent D= Duration M= Magnitude P= Probability</p>

CATEGORY	DESCRIPTION
Status	The Status will be described as <i>positive, negative, or neutral</i> .
Reversibility	The degree to which the impact can be reversed.
Irreplaceable loss of resources?	The degree to which the impact may cause irreplaceable loss of resources.
Can impacts be mitigated?	The degree to which the impact can be mitigated.
Mitigation	Description of mitigation measures.
Cumulative impacts	Identification of cumulative impacts.
Residual impacts	Identification of residual (remaining) impacts after mitigation.

4.3 Gaps and Limitations

With regards to the desktop SIA undertaken, the following should be noted:

- The amended SIA did not include consultations with stakeholders and potentially affected parties.
- A SIA aims to identify possible socio-economic impacts that could occur in future. These impacts are based on existing baseline information. There is thus always an uncertainty with regards to the anticipated impact actually occurring, as well as the intensity thereof. Impact predictions have been made as accurately as possible based on the information available at the time of the study.
- Sources consulted are not exhaustive and additional information can still come to the fore to influence the contents, findings, ratings and conclusions made.
- Socio-economic baseline information was mainly based on official statistics from StatsSA of 2011 and the Community Survey of 2016, as well as municipal documentation. The lack of more recent official socio-economic data is therefore seen as a limiting factor, although it is not anticipated to influence the outcome of the report.
- Technical and other information provided by the EAP is assumed to be correct.

5. BASELINE DESCRIPTION OF THE AFFECTED ENVIRONMENT

The following baseline description of the receiving environment serves as concise update of the baseline information provided as part of the initial study.

5.1 General Description of the Study Area

The proposed study area falls within the Ubuntu Local Municipal area, which forms part of the Pixley Ka Seme District Municipality. The focus of the initial study and the amended document remains on the socio-economic character of the Ubuntu Local Municipal area, as well as the Pixley Ka Seme District Municipality due to the largest part of the initial study area being situated within these municipal boundaries.

The main town within the Ubuntu Local Municipal area is Victoria West, with smaller towns such as Loxton and Richmond. Two smaller settlements, namely Merriman and Hutchinson were established as part of the railway system's settlements. Hutchinson is approximately 12 km south-east of Victoria West situated on the Cape Town-Kimberley railway line, just off the R63, and thus in close proximity to the study area.

The Beaufort West Local Municipality includes the towns of Beaufort West, and the smaller settlements of Merweville and Nelspoort situated in the depths of the Central Karoo. Beaufort West is the heart of the Central Karoo and was originally established as a service centre for the rail and road transport and for the rural agricultural activities. The town has managed to maintain some economic growth even though the rail transport and the agricultural sectors are declining in terms of economic opportunities. This could mainly be attributed to the high volume of traffic passing through the town on the N1 (BWM IDP, 2010).

Nelspoort is approximately 42 km north east of Beaufort West and was established around the construction of a Tuberculosis (TB) Sanatorium. This facility is not functioning anymore which left the community with almost no services except for the school in the town (BKS, 2004 & BWM IDP, 2010). Merweville is situated within the Karoo Plains and is often compared to the desert region of Nevada and Arizona in the USA. The town is situated next to a river and several fountains which led to the development of an efficient irrigation system. Various vegetable gardens, pomegranate hedges and orchards are thus found in town (BKS, 2004).

Victoria West is surrounded by private farms but also has land that is used for communal farming and a game camp. Sheep and goat farming are the main farming activities in the Victoria West and Beaufort West areas, while hunting and eco-tourism activities are fast becoming a significant industry. Wool is mainly used for export purposes, while meat is generally produced for the local market (Ubuntu LM IDP, 2009 & BKS, 2004). Olive production, apricots and prickly pears are some of the other agricultural activities found in the Beaufort West area (BKS, 2004).

The vegetation in the study area is typical Karoo veld characterised by plains, broken ridges, small bushes and grasslands as the main features. The Karoo area also has a number of archaeological, historical and rock art sites, especially of the San.

5.2 Population Dynamics

5.2.1 Population Figures

The community survey of 2016 indicated the total population of the Ubuntu Local Municipality as 19 471 which is an increase from 18 601 individuals as noted as part of the 2011 statistics (www.wazimap.co.za; statssa.org.gov).

Typical to the Northern Cape, the Ubuntu LM and the study area remains scarcely populated with most of the residents living in scattered towns and settlements. The population density was set at 1 individual per km² (www.wazimap.co.za).

5.2.2 Age Groups

As with the previous assessments, the largest sections of the Ubuntu Local Municipality residents fall within the younger age categories. Fifty-seven (57%) percent of the total population are younger than 29 years. A large section (56%) also falls within the working age category of 18 to 64 years (www.wazimap.co.za).

The age categories thus continue to place pressure on the development of job opportunities and other social services such as schooling, community facilities, orphanages and other childcare facilities within the area.

5.2.3 Education Levels

The educational levels among the population of Ubuntu as per the Community Survey of 2016 are as follows:

Table 1: Education Profile

EDUCATIONAL PROFILE						
Area	No Schooling	Some primary	Completed primary	Some secondary	Completed secondary	Higher
Ubuntu LM	12%	1%	18%	8%	23%	5%
Pixley Ka Seme District Municipality	12%	16%	7%	34%	25%	5%
Northern Cape	8%	13%	6%	36%	29%	8%

From the above it is clear that the education profile of the Ubuntu LM is more or less similar to that of the district and province, although there are slightly lower levels in terms of those that completed Grade 12 and those with higher education levels. The overall education levels, however, remain low as indicated in the initial SIA.

5.2.4 Employment Status and Income

The most updated information regarding employment and income is based on the 2011 statistics.

In the Ubuntu LM, 44.2% of the population was employed in 2011 (www.wazimap.co.za; statssa.gov.za). This was approximately 20% higher than the rate in the district and province. In 2001, employment in the municipality was at 66%. This downward trend is of serious concern. Considering the possible negative impacts of the Covid-19 pandemic and its impact on the economy, the situation can now even be worse.

The average annual income level of the Ubuntu LM population in 2011 was at R15 000 which was half of the district and province's average annual income levels. 54% of the population fell in the lower income brackets of less than R20 000 per year. Of this 54%, 9% had no income at all (www.wazimap.co.za; statssa.gov.za).

It is clear that the poverty levels in the Ubuntu LM remains significant with subsequent various socio-economic challenges.

5.2.5 Employment Sectors

Agriculture is the primary economic activity and includes farming with cattle, sheep, goats, followed by crops like lucerne, fruit and so forth on a smaller scale. Game farming is focused on the foreign market. Lambs are marketed for their wool and meat. Wool is an important export product of the Ubuntu region.

Tourism and eco-tourism are currently in the growth phase. Tourists are mostly seasonal visitors to the region during vacations. Victoria West is the most important tourist centre in the region. Tourism is not yet developed in the previously disadvantage communities. There are a few tourism attractions in the region which must be marketed more intensively (www.statssa.org.za).

5.3 Basic Services

Based on the Community Survey of 2016, the status of the basic services in the Ubuntu Local Municipality compared to the district and provincial status can be summarised as follows (www.wazimap.co.za):

Table 2: Basic Services

Basic Services			
	Ubuntu LM	Pixley Ka Seme District Municipality	Northern Cape Province
Water: Piped water inside the house	47%	46%	45%
Electricity: In-house: Prepaid	92%	90%	91%

and conventional			
Sanitation: Access to flush toilet	88%	83%	72%
Refuse Removal	83%	78%	65%

5.4 Housing Provision

A large section of the population (90%) of the Ubuntu Local Municipality lives in formal housing. There is however still a housing backlog estimated at 2 150 housing units, which needs to be attended to (Ubuntu LM IDP, 2020).

5.5 Health Services

The health services in the municipality include 2 hospitals (Victoria West and Richmond) and 3 clinics in Victoria West, Richmond and Loxton. Only Victoria West and Richmond have ambulance services (Ubuntu LM IDP, 2020).

The health services within the area are thus inadequate. Limited medical staff and equipment is also of concern (Ubuntu LM IDP, 2020).

In the first quarter of 2021, the Northern Cape authorities have made provision for the health department to recruit more staff that include doctors to improve the services. Currently concerns with regards to the spread of Covid-19 to the area, relate to the regular movement of road freight, public transport and migrant workers on the N12, which passes towns like Victoria West.

5.6 Safety and Security

Although the crime rate in the region is low if compared to other areas in South Africa, the incidences of crime, similar to the findings of the 2010 study, still relate to family violence and crimes associated with alcohol abuse.

Three police stations are located throughout the municipality. Increased crime levels in Richmond are a source of concern. There is a need for additional personnel and satellite stations in the outlying areas (Ubuntu LM IDP, 2020).

5.7 Tourism

Tourism in the area can unlock economic potential, but since the 2010 study it does not seem as if there was significant progress in this regard. The tourism facilities in the area still mainly refers to game farms with hunting establishments, general accommodation facilities and some restaurant facilities in towns such as Victoria West and Loxton. The maintenance of the existing tourist attractions is furthermore problematic. Tourism in the area must thus be expanded by also involving the disadvantaged communities (Ubuntu LM IDP, 2020).

As indicated with the previous study, the area can be developed as a prime tourist destination, but significant effort would be required which could include the following:

- Focused Tourism Development;
- Maintenance of general infrastructure and provision of services, and enforcement of by-laws to ensure the area as potential tourist attraction;
- Involvement of the wider community through an established forum;
- Restoration and listing of Heritage sites for tourism development purposes;
- Active promotion of the municipality as a destination to create tourism demand;
- Competent human resources to champion tourism in the municipality; and
- Tourism infrastructure development.

5.8 Local Economy

The local economy of Victoria West and surrounds are based on the agricultural activities taking place on privately owned farms. This is mainly focused on livestock farming. Although it is not always that lucrative, it supports a number of people in the area. The undiversified local economy is thus quite vulnerable to economic fluctuations.

No significant changes in the local economy were noted since the 2010 study.

6. POTENTIAL IMPACTS ASSOCIATED WITH THE CONSTRUCTION PHASE

The following socio-economic impacts were assessed as part of the initial SIA undertaken in 2010. Based on the updated baseline information and amended technical specifications of the project, the following section provides a summarised update on the impacts and significance rating associated with the Modderfontein WEF during the construction phase.

A summary of the significance ratings was included under Section 10 of this document. References were made to the rating tables as included in the initial study. Only where changes to the significance rating occurred, were the rating tables again included in this document.

6.1 Job Creation and Skills Inequities

As indicated in the initial study, the Modderfontein WEF will result in some (approximately 40% of the total opportunities) employment opportunities for the middle to lower skilled levels during the construction phase through e.g. the establishment of access roads and services and the erection of the WTGs. More specialised skills (approximately 60% of the

total opportunities) could be focused on the installation of the Wind Turbine Generators (WTGs).

Based on the skills levels within the Ubuntu LM, it is again concluded that the middle to lower skilled opportunities can be filled from the local municipal area. Higher skilled positions would be sourced from within the province and the rest of the country. A positive but limited short term impact is thus foreseen.

The Medium Significance (36) rating prior to mitigation and Medium Significance post mitigation (48) remains applicable. Enhancement measures as proposed under Section 6.1 as part of the initial study would remain relevant.

6.2 Inflow of workers

The initial study assessed the inflow of workers associated with the proposed PV facility and WEF. The inflow of the number of construction workers associated with the Modderfontein WEF would probably again be in the order of, or even less than the previously stated twenty individuals. If locals are employed, the impact risks would be minimised with very little impact on the existing social networks. As noted in the initial report, social conflict between outsiders and the local population must however still be mitigated as far as possible.

The extent, duration, magnitude and probability remain unchanged even though less workers can be involved in the project. The Medium Significance (40) rating prior to mitigation and Medium Significance post mitigation (30) thus remains applicable. Mitigation measures as recommended under Section 6.2 as part of the initial study would remain relevant.

6.3 Influx of jobseekers

Due to the scale of the construction activities, workforce involved, population density of the Ubuntu LM and distance of the site to the nearest town of Victoria West, the influx of large numbers of jobseekers are highly unlikely. Mitigation measures (refer to section 6.3 as part of the initial study) to avoid any indirect negative socio-economic impacts in this regard must be implemented. The main focus should be on the communication strategy with regards to the recruitment process for the lower skilled levels. The medium significance rating (40) prior to mitigation, and medium significance (27) post mitigation, remain unchanged.

6.4 Accommodation of workforce

Experience has shown that the workforce teams are usually accommodated within existing accommodation facilities in nearby towns. The benefits in this regard would accrue to the local hospitality industry of e.g. Victoria West. The size of the workforce is anticipated to be

relatively small, but due to the timeframe of the construction period (estimated at a year to eighteen months), the impact would still be of a medium positive significance.

The positive significance rating of medium (30) prior to mitigation and medium (30) post mitigation therefore remains the same as indicated in the initial study.

6.5 Intrusion related impacts

The intrusion related impacts associated with the surrounding property owners' daily living and movement patterns relate to the inflow of workers to the area, the movement of construction vehicles and personnel, increased noise and dust pollution with subsequent impacts on health and safety. As part of the updated assessment, the following impact categories were thus assessed as one integrated section:

- Impact on daily living and movement patterns;
- Impact on farming activities;
- Traffic related impacts; and
- Health and safety impacts;

The construction of and vehicular movement on internal dirt roads, and local access roads to the site will increase the dust and noise levels within the area. This would result in intermittent negative impacts e.g. on the Biesiespoort Road and guest houses along this road. As stated in the initial report, the limited number of residential dwellings and sensitive receptors in the study area would however limit the negative impacts in this regard.

The Phase 1 Nobelsfontein WEF project has been implemented and loss of the resource use as discussed in the initial report, which would relate to the short-term construction related intrusion impacts, would now only be applicable to the farm Modderfontein. With proper planning, and the implementation of mitigation measures, the intrusions, noise and dust pollution impacts can be successfully mitigated.

The construction phase's traffic flow is expected to be less compared to the volumes considered for the initial study due to the smaller scale of the project. Based on information provided during the initial study, it can be deducted that the movement of the 34 turbines of the Modderfontein WEF would result in approximately 12 weeks of road transport (3 turbines per week). Risks of accidents and impact on local road surfaces would remain, but of a lower magnitude and shorter duration.

Health and safety risks associated with the construction phase of the Modderfontein WEF would remain the same as those listed as part of the initial study e.g. injuries and accidents, unauthorised entry to the construction areas, and risks associated with storage of equipment.

Due to less workers involved in the process, the impacts would however be of a smaller magnitude resulting in a lower significance rating.

The overall significance rating of medium (40) prior to mitigation and rating of low (21) post mitigation for the intrusion impacts is given. A lower significant rating after mitigation is noted compared to the medium ratings given for the various categories of intrusion impacts as part of the initial study. The main reason is due to the lower impact associated with the smaller scale of the Modderfontein WEF. Mitigation measures provided under Sections 6.5, 6.6, 6.9 and 6.12 of the initial study remain applicable and should be implemented.

Table 3: Intrusion related impacts

Nature: Intrusion Impacts		
	Without mitigation	With mitigation
Extent	Local (3)	Local (2)
Duration	Very short duration (1)	Very short duration (1)
Magnitude	Moderate (6)	Low (4)
Probability	Highly probable (4)	Probable (3)
Significance	Medium (40)	Low (21)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation: Mitigation measures provided under Sections 6.5, 6.6, 6.9 and 6.12 of the initial study remain applicable and should be implemented.		
Cumulative impacts: None anticipated		
Residual impacts: None anticipated		

6.6 Local procurement

Since 2010 when the initial study was undertaken, advances with regards to the manufacturing and assembly of turbine tower parts have been made within South Africa. It is thus more likely that the local manufacturing industries could now stand to benefit from the construction of the Modderfontein WEF. Should such local procurement and investments realise, various additional jobs can be created. The procurement of general construction material and goods would be highly probable with positive local economic spin-offs.

Table 4: Local Procurement

Nature: Local Procurement		
	Without mitigation	With mitigation
Extent	Local (3)	Regional (4)
Duration	Very short duration (1)	Short duration (2)
Magnitude	Low (4)	Moderate (6)
Probability	Probable (3)	Highly probable (4)
Significance	Low (24)	Medium (48)
Status (positive or negative)	Positive	Positive
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be enhanced?		
Enhancement: Enhancement measures as included in the initial assessment under Section 6.7 must be implemented. Procurement of South African based companies for material and services must receive priority.		
Cumulative impacts: Local economic spin-offs with subsequent additional job creation.		
Residual impacts: Stimulation of local economy		

6.7 Impact on Ubuntu Local Municipality

Over time, the upgrading or development of supporting infrastructure and services for projects have become the responsibility of the project applicants and private sector. This already serves as mitigating factor which limits possible negative impacts on the Ubuntu Local Municipality. It is thus unlikely that the proposed project would place an additional burden on the strained finances of the local municipality.

The significance rating of Medium (44) prior to mitigation and significance rating of Low (27) post mitigation remains valid. Mitigation measures as contained as part of Section 6.8 of the initial study must still be implemented. Detailed planning and discussions with the municipality in this regard would remain critical.

6.8 Impact on tourism

As noted as part of the initial study, the positive impact on accommodation facilities would remain albeit on a smaller scale due to the assumption that less workers would be involved in the construction process due to the smaller scale of the Modderfontein WEF.

No negative impacts on the tourism sector associated with the visual impact of the construction of the wind turbines is again expected especially due to the reduced number and density of turbines.

Even though the positive impact on the tourism industry would be of a smaller scale, the impact ratings prior to enhancement (Medium 33) and post enhancement (Medium 44) remain as per the initial study.

6.9 Visual Impact

As with the initial study, the visual impacts associated with the construction phase of the Modderfontein WEF would remain of a short duration but would respond to mitigation. The significance rating prior to mitigation of Medium (36) and post mitigation of Low (27) would still be valid. Mitigation measures as recommended as part of the initial study must still be implemented.

7. POTENTIAL IMPACTS ASSOCIATED WITH THE OPERATIONAL PHASE

The following socio-economic impacts were assessed as part of the initial SIA undertaken in 2010. Based on the updated baseline information the following section provides a summarised update on the impacts and significance rating associated with the Modderfontein WEF during the operational phases.

7.1 Job Creation

The Modderfontein WEF could employ twenty (20) or less individuals during the operational phase of the project. As indicated as part of the initial study the employment opportunities, even limited, would still have a positive impact. This can now even be more significant than previously, based on the lower employment levels in the Ubuntu Local Municipality (Community Survey 2016) and the negative socio-economic impacts of the Covid-19 pandemic on local economies. The positive indirect spin-offs of the project and the impact on the local economy must be noted.

The Medium Significance (36) rating prior to mitigation and Medium Significance post mitigation (48) remains applicable. Enhancement measures as proposed under Section 7.1 as part of the initial study remain relevant and should be implemented.

7.2 Intrusion related impacts

Intrusions refer to the impact on the daily living and movement patterns, the farming activities on-site and in the area, intrusions due to vehicular movement, noise impacts, as well as health and safety aspects.

The Modderfontein WEF would result in limited intrusion impacts as the facility would mostly be managed by remote monitoring. Limited workers would be on-site for the operational life of the facility.

The land-use on the property would be disturbed at the tower footprints and where access roads are constructed. Farming activities will be able to continue on-site due to the reduction in turbine density, but in a different manner. Adjacent farming activities are not expected to be impacted.

Security would be implemented on site to limit unauthorised entry and limited safety and security risks are thus associated with the WEF. No health-related risks are anticipated.

Noise generating sources would refer to the wind turbines, as well as to the movement of workers and vehicles. The intermittent noise is anticipated to have limited impacts due to the distance of homesteads from the site and the reduction in turbine density.

An overall medium significance rating (33) prior to mitigation and a low significance (20) rating after mitigation are given. Mitigation measures pertaining to the WEF, as included in the initial study, must be implemented.

Table 5: Intrusion related impacts

Nature: Intrusion Impacts		
	Without mitigation	With mitigation
Extent	Local (3)	Local (2)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Low (4)
Probability	Probable (3)	Improbable (2)
Significance	Medium (33)	Low (20)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	
Mitigation: Mitigation measures provided under Sections 7.2, 7.3, 7.8, 7.10 and 7.12 of the initial study remain applicable and should be implemented.		
Cumulative impacts: None anticipated		
Residual impacts: None anticipated		

7.3 Possible impact on tourism

As stated within the initial report, no negative impacts on the local tourism industry are foreseen. The impact on tourism could even be viewed as a potentially positive. The medium (33) significance rating prior to enhancement as stated in the initial report can be changed to a higher but still medium (39) significance rating, if the facility can be incorporated in the Ubuntu Local Municipality's tourism strategy.

7.4 Local procurement

Although the design and manufacturing of the WEF equipment require highly skilled inputs, local procurement of goods, materials and services can still be implemented. Opportunities with regards to security services, cleaning and some maintenance can result in positive economic spin-offs as stated in the initial report.

The significance rating of low (22) prior to enhancement and the significance rating of medium (39) after enhancement remain valid. Enhancement as indicated under section 7.5 of the initial study must be implemented.

7.5 Local Economic Contribution

The Modderfontein WEF would have a positive impact on the electricity supply, especially with regards to the electricity shortages and price increases experienced in South Africa. Positive economic spin-offs are thus foreseen although this cannot be quantified. The significance rating of medium (39) prior to enhancement remains. Due to the anticipated output and size of the facility, a moderate magnitude rating is given post enhancement. The significance rating of medium (52) is then given which is a lower rating as within the original report.

Enhancement measures as indicated under section 7.6 of the initial study must be implemented.

7.6 Social Development and Social Services Support

The impact of the proposed Modderfontein WEF in terms of social development and social services support as discussed in the initial report would remain applicable. The medium (39) significance rating prior to enhancement and medium (60) significance rating post enhancement are still relevant.

Enhancement measures as indicated under section 7.7 of the initial study must be implemented.

7.7 Land Value

As concluded in the initial report, from a social perspective a limited long-term impact on the property values is foreseen, mainly due to the overall positive association to WEF's as environmentally acceptable technologies. The medium (39) negative significance rating can thus be changed to a low (26) negative significance rating post mitigation. The latter could still be negative, but a potentially neutral impact.

7.8 Visual impact and Sense of Place

The visual impact and impact on the sense of place due to the construction and operation of the Modderfontein WEF will not bring new impacts to the area due to the presence of the existing wind turbines on the farm Noblesfontein. The study area remains rural and largely undisturbed, and screening of the proposed turbines cannot be undertaken. The possible negative impact, however, can be seen to be of a relative significance due to the reduction in turbine density, and as there would only be a limited number of receptors (landowners and those travelling on the N12 and local roads).

The facility would remain in the area over a long period and the cumulative visual impact of the initial project and the proposed Modderfontein WEF would be highly probable. Therefore, the initial significance rating of medium (60) prior to mitigation and medium (48) after mitigation remain applicable.

Mitigation measures recommended by the Visual Impact Assessment must be implemented.

8. NO-GO OPTION

As with the original study, from a socio-economic perspective the No-go option is not supported. The project will result in positive socio-economic impacts and alleviate the strain on the existing electricity supply in the country. The majority of negative impacts will materialise during the construction phase. These short-term negative impacts will respond to mitigation.

9. DECOMMISSIONING

Decommissioning of the facility can result in similar negative impacts compared to the construction of the facility. This is only planned to take place in approximately 30 years' time. At that stage, an updated study would be required to assess the impacts of decommissioning.

10. SIGNIFICANCE RATING SUMMARY

The table below provides a summary of the ratings for the different impact categories.

Most of the socio-economic impacts that are rated as medium remains at a lower medium rating after mitigation or enhancement measures have been applied, although in select cases the significance is reduced to a low rating. There are no socio-economic impacts that are rated as high.

Table 6: Summary of Socio-Economic Impact Ratings

Socio-economic Impact	Phase	Significance of Impact	
		Pre-mitigation	Post-mitigation
Job Creation and Skills Inequities	Construction	Medium (36) +	Medium (48) +
Inflow of workers	Construction	Medium (40) -	Medium (30) -
Inflow of jobseekers	Construction	Medium (40) -	Medium (27) -
Accommodation of workforce	Construction	Medium (30) +	Medium (30) +
Intrusion related impacts	Construction	Medium (40) -	Low (21) -
Local Procurement	Construction	Low (24)	Medium (48)
Impact on Ubuntu Local Municipality	Construction	Medium (44) -	Low (27) -
Impact on tourism	Construction	Medium (33) +	Medium (44) +
Visual Impact	Construction	Medium (36) -	Low (27) -
Job creation	Operations	Medium (36) +	Medium (48) +
Intrusion Impacts	Operations	Medium (33) -	Low (20) -
Impact on tourism	Operations	Medium (33) +	Medium (36) +
Local Procurement	Operations	Low (22) +	Medium (39) +
Local Economic Contribution	Operations	Medium (39) +	Medium (52) +
Social development and social services support	Operations	Medium (39) +	Medium (60) +
Land Value	Operations	Medium (39) -	Low (26) - to potentially neutral
Visual impact and sense of place	Operations	Medium (60) -	Medium (48) -

11. CONCLUSION

Based on the concise desktop assessment of the receiving environment and the anticipated impacts associated with the Modderfontein WEF, it is concluded that there are no socio-economic impacts of a high significance associated with the project at this stage.

There are a range of positive impacts associated with the proposed project, such as the creation of employment and income generation, local procurement and social development and services support, as well as the stimulation of local economic growth. Another positive impact is the positive impact on the improved electricity supply.

There are however several potential negative socio-economic impacts of the proposed project that may affect surrounding landowners and residential areas. These would mostly

materialise during the construction phase and are thus of a short duration. These impacts would further respond to mitigation. The negative impacts associated with the proposed project include the intrusions on the daily living and movement patterns (inflow of workers and possibly jobseekers), increased nuisance factors (dust levels, noise and traffic movement) and impact on sense of place.

From a socio-economic perspective it is concluded that the project can be supported and it is recommended that the development of the Modderfontein WEF be approved by the relevant authorities.

12. SOURCES CONSULTED

12.1 Documents

Becker, H.A. (1997). Social Impact Assessment: Method and experience in Europe, North America and the developing world. UCL Press: London

Becker, H.A. & Vanclay, F. (eds) (2003). The International Handbook of Social Impact Assessment: Conceptual and Methodological Advances. Edward Elgar: Cheltenham

Burdge, R.J. A community guide to Social Impact Assessment

Creative Harvest. (2009). Ubuntu Tourism Strategy: A ten year plan (2010 until 2020).

Finsterbusch, K., Llewellyn, L.G. & Wolf, C.P. (eds) (1983). Social Impact Assessment Methods. Sage Publications: Beverly Hills

Twelve Developmental Services (Pty) Ltd. 2011. Ubuntu Local Municipality: Local Economic Development Plan: 2014-2015

Ubuntu Local Municipality. (2020). Integrated Development Plan 2017-2022: Draft IDP Review 2020/2021.

12.2 Websites

www.statssa.gov.za

www.ubuntu.gov.za

www.wazimap.co.za

13. APPENDIX A: QUALIFICATIONS AND EXPERIENCE OF SPECIALIST

Ms. Ingrid Snyman holds a BA Honours degree in Anthropology. She has twenty years' experience in the social field. Ms. Snyman has been involved in various Social Impact Assessments during her career as social scientist. These project themes consist of infrastructure development, waste management, road development, water and sanitation programmes, township and other residential type developments. She has also been involved in the designing and managing of numerous public participation programmes and communication strategies, particularly on complex development projects that require various levels and approaches.

Ms. Snyman has no vested interest in the outcome of the project and hereby declares her independence with regard to the study undertaken for the above mentioned project.