



ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

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10th August 2021

Attention: Ms Aniqah Misbach
Mainstream Renewable Power (Pty) Ltd
Email: Aniqah.Misbach@mainstreamrp.com

Dear Ms Misbach

WAAIHOEK WIND FARM - PART 2 AMENDMENT APPLICATION - SPECIALIST STUDY UPDATES

Mainstream submitted an application in 2014 to construct the Waaihoek Wind Energy Facility (WEF) south-east of Utrecht in the Emadlangeni Local Municipality, KZN. The WEF was to host a maximum of 93 wind turbines, each generating between 1.5 – 4 megawatts (MW) of power, with total combined potential power output of approximately 160MW.

The then Department of Environmental Affairs (DEA) approved 15 turbines in 2015, but this was increased to 68 turbines and a total installed capacity of 140MW, following an appeal process. A subsequent Part 2 Amendment reduced the number of turbines to 47 turbines with an individual turbine capacity of 3.0 MW.

Mainstream wishes to submit a Part 2 Amendment Application to:

- Reduce the number of turbines from 47 to 43 turbines
- Increase rotor diameter from 140 m to 170 m (30 m): and
- Remove the individual turbine generation capacity specification.

CES conducted the agricultural, socio-economic and tourism specialist studies as part of the Environmental Impact Assessment (EIA) for the proposed WEF in 2014. We have now been appointed to provide specialist inputs based on the proposed amendments, as part of the Part 2 EA Amendment Report:

- Agricultural Impact Assessment;
- Socio-economic Impact Assessment; and
- Tourism Impact Assessment.

The current report provides an update of the expected impact that the current proposed Part 2 Amendment will have on agricultural potential, and tourism and socio-economic conditions.

1. Agricultural Impact Assessment

CES was appointed to conduct an agricultural and soil impact assessment as part of the initial EIA process in 2014 in order to predict and assess the significance of identified impacts associated with the proposed Waaihoek WEF on the agricultural potential of the affected land.

Potential impacts identified

The proposed WEF's primary impact on agricultural activities would involve the construction of the wind turbines and associated infrastructure (access roads and cables). The construction of these turbines and associated infrastructure would then only affect a total area of 3.0 ha of the total local agricultural portion of the affected land. It was also expected that the entire site would revert back to agricultural land during decommissioning of the Waaihoek WEF site.

Per impact assessment in Table 1 below, the study determined that the impact of the proposed Waaihoek WEF development on the study area's agricultural potential will be LOW, with the loss of agricultural land mostly being attributed to the creation of the service roads, wind turbine foundations and laydown area. The total loss of grazing land will be significantly less than 1 % of the total agricultural area of 15,353 ha. All post-mitigation impacts were also considered as LOW. The only high risk was the risk of fire which can be mitigated to a low risk with appropriate fire management controls in place.

Table 1: Summary of impacts of the proposed WEF on agricultural potential.			
ISSUE	IMPACTS	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION
Construction Phase			
Management of hazardous chemicals	Soil contamination and a loss of fertile soils as a result of hazardous chemical spills.	MODERATE	LOW
Increased risk of fires from construction activities	Potential loss of crops, grazing and livestock as a result of fires originating from the construction site.	HIGH	LOW
Soil rehabilitation management	Incorrect or insufficient rehabilitation of soil will result in a decrease of agricultural viability/potential especially in Highland Sourveld.	MODERATE	LOW
Operation Phase			
Increase in erosion potential	An increase in hard surfaces (concrete foundations and roads) will increase run-off and potentially lead to soil erosion.	MODERATE	LOW
Establishment of renewable energy infrastructure on agricultural land	Loss of high potential agricultural land as a result of new WEF infrastructure development.	LOW	LOW
	Gradual reduction of available agricultural land as a consequence of an increase in renewable energy development in South Africa.	LOW	LOW
Soil profile disturbance and resultant decrease in soil agricultural capability	Excavations for the construction of the turbines and associated infrastructure will disturb the soil profile. If topsoil becomes buried, or subsoil and rock that is less suitable for root growth, remains at the surface, the agricultural suitability of the soil, that will become available for agriculture again after decommissioning of the WEF, will be reduced.	MODERATE	LOW

Figures 1 and 2 below show the location of the original 68 turbines and the current proposed 43 turbines with respect to agricultural potential. All 43 remaining turbines will still be located on high potential arable land, but since grazing and crop fields will still be permitted around and underneath turbines, the impact will be low.

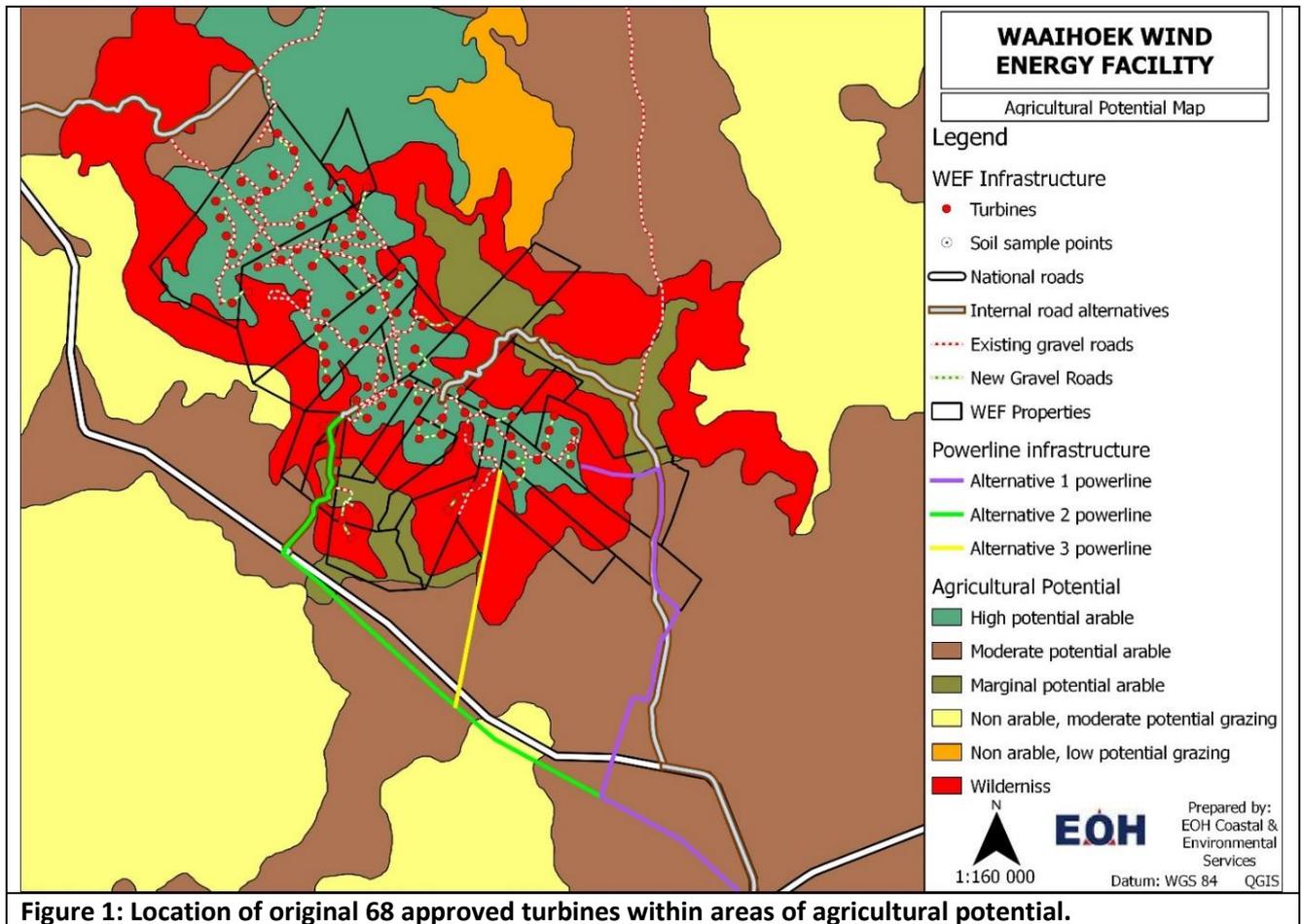


Figure 1: Location of original 68 approved turbines within areas of agricultural potential.

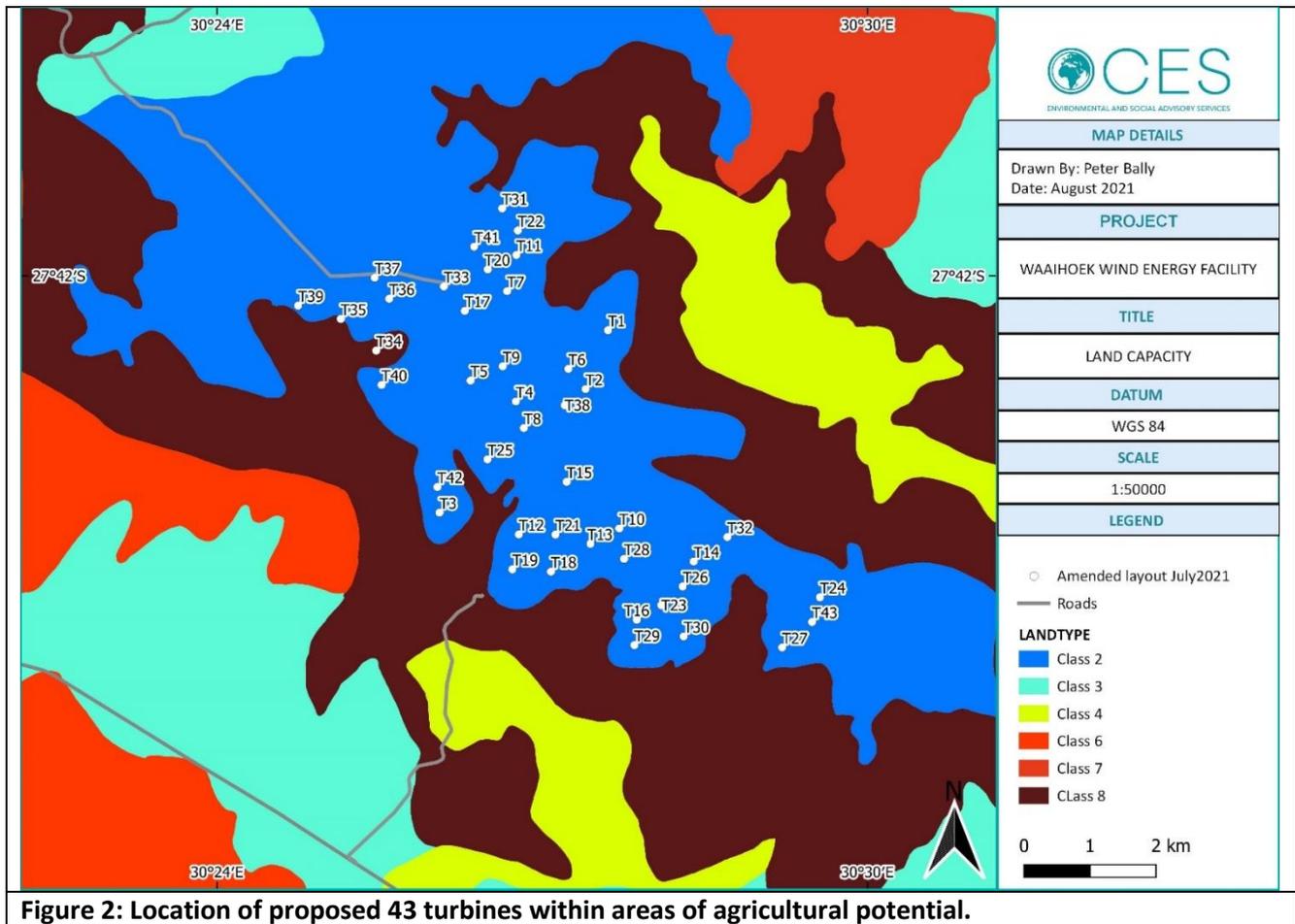


Figure 2: Location of proposed 43 turbines within areas of agricultural potential.

Conclusion

It is our conclusion, due to the reduced number of turbines and overall footprint, that the proposed amendments to the Waaihoek WEF will not increase the risks to the agricultural potential of the affected area and the impacts remain LOW with the proposed mitigation measures. Due to the reduced number of turbines, the risk of impacts to the agricultural potential of the affected area will likely decline.

2. Socio-economic Impact Assessment

CES was appointed to conduct a socio-economic impact assessment (SIA) as part of the initial EIA process in 2014. The SIA largely focused on the direct and indirect project-affected farms (PAFs). The direct PAFs refer to farms on which the turbines and power lines will be constructed, whereas the indirect PAFs refer to the adjacent farms. Moreover, the report assesses the social impacts of the project on the traditional occupiers of the land, as well as on the project-affected communities (PACs). In so-doing, it provided guidelines for limiting or mitigating negative impacts and optimising project benefits.

Potential impacts identified

Per impact assessment in Table 2 below, the study determined that the impact of the proposed Waaihoek WEF development on the socio-economic environment of the affected area will be LOW with mitigation. Some benefits will accrue locally, such as stimulation of the local economy.

The following four broad issues and 19 impacts are discussed in this section (in no particular order). Mitigation measures are provided for each issue.

ISSUE	IMPACTS	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION
Construction and Upgrading of Roads	1.1: Influx of people and expansion of hamlets	Moderate	Low
	1.2: An increase in subsistence farmers	Moderate	Low
	1.3: Easing access onto farms for unrestricted vehicles	High	Low
	1.4: Increase in crime	Low	Low
Health and Safety	2.1: Risk to aircraft navigation safety	High	Low
	2.2: Increased traffic and related security risks	Moderate	Low
	2.3: Water pollution and changes in the water table or water flow regime	Moderate	Low
	2.4: Nuisance impacts (ambient noise and shadow flickering)	Moderate	Low
	2.5: Fire	Moderate	Low
	2.6: Turbine malfunctioning (blade throw and gearbox failure)	High	Low
	2.7: Electromagnetic interference	Low	Low
	3.1: Employing local labour	Low	Low

Table 2: Summary of socio-economic related impacts associated with the proposed WEF.

ISSUE	IMPACTS	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION
Stimulation of Economic Growth	3.2: Skills training and further training opportunities	Low +	High +
	3.3: Contributing to local and regional businesses	Moderate +	High +
	3.4: Capital investment for farmers to expand their farms	High +	High +
Altering the Landscape Features	4.1: Soil erosion	Moderate	Low
	4.2: Visual impact: changes to farm-owners' place attachment	Moderate	Moderate
	4.3: Effects on the area's tourism potential	Moderate	Low
	4.4: Effects on cattle grazing	Low	Low

Conclusion

It is our conclusion, due to the reduced number of turbines and overall footprint, that the proposed amendments to the Waaihoek WEF will not increase the risks to the socio-economic conditions of the affected area and the impacts remain LOW with the proposed mitigation measures.

3. Tourism Impact Assessment

CES was appointed to conduct a tourism impact assessment as part of the initial EIA process in 2014. This was done by describing and identifying the impact of the WEF on local tourism in and around the town of Utrecht. In order to assess the impacts and to take a broad range of possible tourism developments into consideration, tourism activities were divided into Eco-tourism and Heritage tourism. The report also drew on previous studies that assessed the perceptions of tourists towards wind turbines, globally.

Potential impacts identified

As per the impact assessment in Table 3 below, the study determined that the impact of the proposed Waaihoek WEF development on local tourism will range between MODERATE to LOW with mitigation. The impacts mostly relate to impacts on local heritage and ecotourism and are probably linked to the visual impact of the WEF on these local tourism products.

Table 3: Summary of tourism related impacts associated with the proposed WEF.			
ISSUE	IMPACTS	SIGNIFICANCE PRE-MITIGATION	SIGNIFICANCE POST-MITIGATION
PLANNING & DESIGN PHASE			
Ecotourism	Ecotourism in the area may be negatively / positively impacted by the WEF development through the introduction of manmade features to the natural environment.	MODERATE	MODERATE (Can be negative or positive depending on the individual)
Heritage tourism	The development of the WEF within close proximity of the battlefields memorial sites could negatively affect tourism related to these memorials.	MODERATE	LOW
CONSTRUCTION PHASE			
Ecotourism	Ecotourism in the area may be negatively impacted by the WEF through the increase in activity and noise which could chase away birds and animals in the area.	MODERATE	MODERATE
Heritage tourism	The development of the WEF within close proximity of the battlefields memorial sites could negatively affect tourism related to these memorials.	MODERATE	LOW
OPERATIONAL PHASE			
Ecotourism	Ecotourism in the area may be positively / negatively impacted by the WEF through the introduction of a new possible tourist attraction / detraction to the area. The impact depends on the perceptions of the individual tourist.	MODERATE	MODERATE (Can be negative or positive depending on the individual)
DECOMMISSIONING PHASE			
Ecotourism	Ecotourism in the area may be negatively impacted by the deconstruction of the WEF because of the increase in activity and noise which could chase away birds and animals in the area.	MODERATE	MODERATE
Heritage tourism	The deconstruction of the WEF within close proximity of the battlefields memorial sites could negatively affect tourism related to these memorials.	MODERATE	LOW



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In some cases, the proposed WEF could make a positive contribution to the LED activities. Examples would be tourists and locals who have an interest in viewing the turbines and the media attention that the proposed development may attract.

The impacts identified were predominantly rated as MODERATE without mitigation, due to the fact that the effects of the proposed WEF on tourism will differ from individual to individual, and it is unclear whether the proposed mitigation measures will result in a low-moderate impact on tourism.

In the context of the current assessment, the ability to predict with accuracy if and to what degree tourism will be affected by the WEF, is limited. The impacts of the proposed Waaihoek WEF could be positive or negative; positive due to the wind farm being a tourist attraction in itself or negative due to the alteration of the natural landscape.

Conclusion

It is our conclusion, due to the reduced number of turbines and overall footprint, that the proposed amendments to the Waaihoek WEF will not increase the risks to the tourism industry in the study area.

Yours faithfully

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Executive Director

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