



ARCUS

**MOTHERWELL WIND ENERGY FACILITY
EA AMENDMENT REPORT**

Bat Assessment

On behalf of

CES – Environmental and Social Advisory Services

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TABLE OF CONTENTS

1	INTRODUCTION	1
2	MOTHERWELL BASELINE ENVIRONMENT.....	1
3	EFFECT ON CURRENT IMPACT.....	1
4	EFFECT ON CUMULATIVE IMPACTS.....	2
5	EFFECT ON MITIGATION MEASURES	2
6	EFFECT ON CURRENT EA CONDITIONS.....	2
7	CONCLUSION.....	3
8	REFERENCES.....	3

Figure 1 – Bat Sensitivity Map

1 INTRODUCTION

Motherwell Wind Power (Pty) Ltd ("the applicant") received environmental authorisation for the Motherwell Wind Energy Facility (WEF) on 28 March 2013 (which was subsequently amended on 7 November 2016). The project is approved for the operation of 22 wind turbines, each with a hub height of 137 m and blade length of 62 m. The applicant is now submitting and amendment application to the Department of Environmental Affairs (DEA) to extend the validity of the environmental authorisation (EA) as well as to amend the layout. Associated with the amended layout will be a reduction in the number of turbines from 22 to 14.

The aim of this assessment is to determine if there has been a substantive change to the site as assessed during the original EIA. This report therefore considers land use change in the area and if this results in any additional impacts to bats. The report also assesses the amended layout with respect to impacts to bats.

2 MOTHERWELL BASELINE ENVIRONMENT

The site falls within the Albany Thicket biome and across two vegetation units, namely, the Coega Bontveld vegetation unit and the Sundays Thicket vegetation unit. The Coega Bontveld vegetation unit is characterized by moderately undulating plains that support low thicket species and secondary open grassland. The plant species that occur here are a combination of Fynbos, Grassland and Succulent Karoo species. According to the Final Bat Monitoring Report (Animalia, 2015), the roosting potential for bats within this unit is low as the vegetation does not provide the necessary cover but there is good foraging potential. Open air bat species should be more abundant in this vegetation compared to clutter and clutter-edge bat species, which would be associated more with the Sundays Thicket.

The Sundays Thicket vegetation unit is characterized by undulating plains and low mountains that support tall, dense thicket comprising trees, shrubs and succulents. The denser thicket and trees found within this vegetation is more likely to provide roosting areas for bats compared to Coega Bontveld vegetation. The diversity of vegetation will encourage not only open air bat foragers but also the clutter and clutter-edge bat species.

Based on a site visit undertaken by CES - Environmental and social advisory services in July 2019, land use on the site has not changed since the original EIA was completed in 2012, or since the pre-construction bat monitoring was completed in 2015. Therefore, the baseline environment and available habitats as described above have not changed substantially. The community of bats at the site will therefore not likely have changed.

However, since the completion of the EIA in 2012, the Grassridge WEF, which borders the proposed Motherwell WEF to the north, has been constructed. Thus, from a regional perspective the receiving environment has been significantly altered. Wind turbines can displace bats (Millon et al. 2018) so it may be possible that bat activity has shifted away from area of the Grassridge WEF, potentially to the area encompassed by the Motherwell WEF and in so doing, increased bat activity at the Motherwell WEF. This might increase the significance of proposed impacts to bats and also result in changes to cumulative impacts.

3 EFFECT ON CURRENT IMPACTS

The current rated impacts to bats, based on the EIA, are moderate negative before and after mitigation. Based on current knowledge of impacts to bats in South Africa, the impacts to bats before mitigation was likely under estimated. However, the post-mitigation impacts are likely accurately predicted and will not change as a result of the changes to the receiving environment (i.e. the installation of a wind energy facility nearby) or amended layout.

Therefore, this amendment process will not result in an increase of the currently assessed and rated impacts to bats and impacts will remain moderate with mitigation.

4 EFFECT ON CUMULATIVE IMPACTS

Cumulative impacts were rated as moderate before and after mitigation in the EIA report however new information on wind energy development has emerged since. There are two operational facilities in the assessment area (the Grassridge and Van Stadens WEFs), defined as a 50 km radius around the proposed WEF, and at least six proposed facilities that we are aware of (Sonop, Universal, Coega West, Motherwell, Ukomeleza, and a confidential WEF). In addition, there is a cluster of proposed and operational wind farms approximately 75 km west of Dassiesridge including the operational Jeffreys Bay, Oyster Bay, Gibson Bay, Kouga and Tsitsikama Community wind farms. The Cookhouse Renewable Energy Development Zone is located approximately 65 km north which includes the operational Waainek, Cookhouse, Golden Valley, Nojoli, Nxuba and Amakhala Emoyeni wind farms, as well as several proposed wind farms.

Information on bat fatality in these areas is difficult to obtain from all facilities but for those from which data are available, the impacts to bats at some are high. The introduction of another wind farm is likely to have a very high negative cumulative impact to the bat community in these areas. With mitigation measures, these impacts could reduce to moderate but may still be high depending on the success of the mitigation measures at each of the wind farms in the cumulative impact assessment area. The moderate rating therefore assumes that all wind farms will apply and adhere to appropriate mitigation which may not occur. Thus, while the post-mitigation cumulative impact rating has not increased since the EIA, it is possible that cumulative impacts may be higher than previously assessed.

Table 1: Cumulative Impacts of the Motherwell WEF on Bats

RATING		Temporal Scale		Spatial Scale		Severity of Impact		Risk or Likelihood		Total
	Without Mitigation	Long term	3	Regional	3	Very Severe	8	Definite	4	18
With Mitigation	Long term	3	Regional	3	Moderate	3	May Occur	2	11	
Overall Significance without mitigation										Very High -
Overall Significance with mitigation										Moderate -

5 EFFECT ON MITIGATION MEASURES

The potentially higher cumulative impacts can be mitigated by updating the bat sensitivity buffers. In addition, the lower number of turbines may contribute to less severe cumulative impacts. Current best practise requires a minimum of a 200 m buffer to blade tip from all important bat habitat. Currently, a 100 m buffer has been applied to important bat habitat but this must increase to 200 m to blade tip (and hence 223 m to the turbine base based on Mitchell-Jones and Carlin 2014). No turbines are within moderate sensitivity buffers (Figure 1).

While no turbines are within any buffers, the pre-construction bat monitoring report outline an adaptive mitigation programme which centres on curtailment. This should be used to manage residual impacts. While curtailment is not required from the start operation, the decision to implement curtailment must be based on incoming fatality data.

6 EFFECT ON CURRENT EA CONDITIONS

In consideration of the increased cumulative impacts adjustments should be made to the EA, as well as to the EMP. The EA needs to be amended to include a condition that curtailment for bats must be implemented in an adaptive manner following the

recommendations in the pre-construction bat monitoring report. The EA and EMP must therefore stipulate that the curtailment regime must be continually assessed and adapted in response to bat fatality levels.

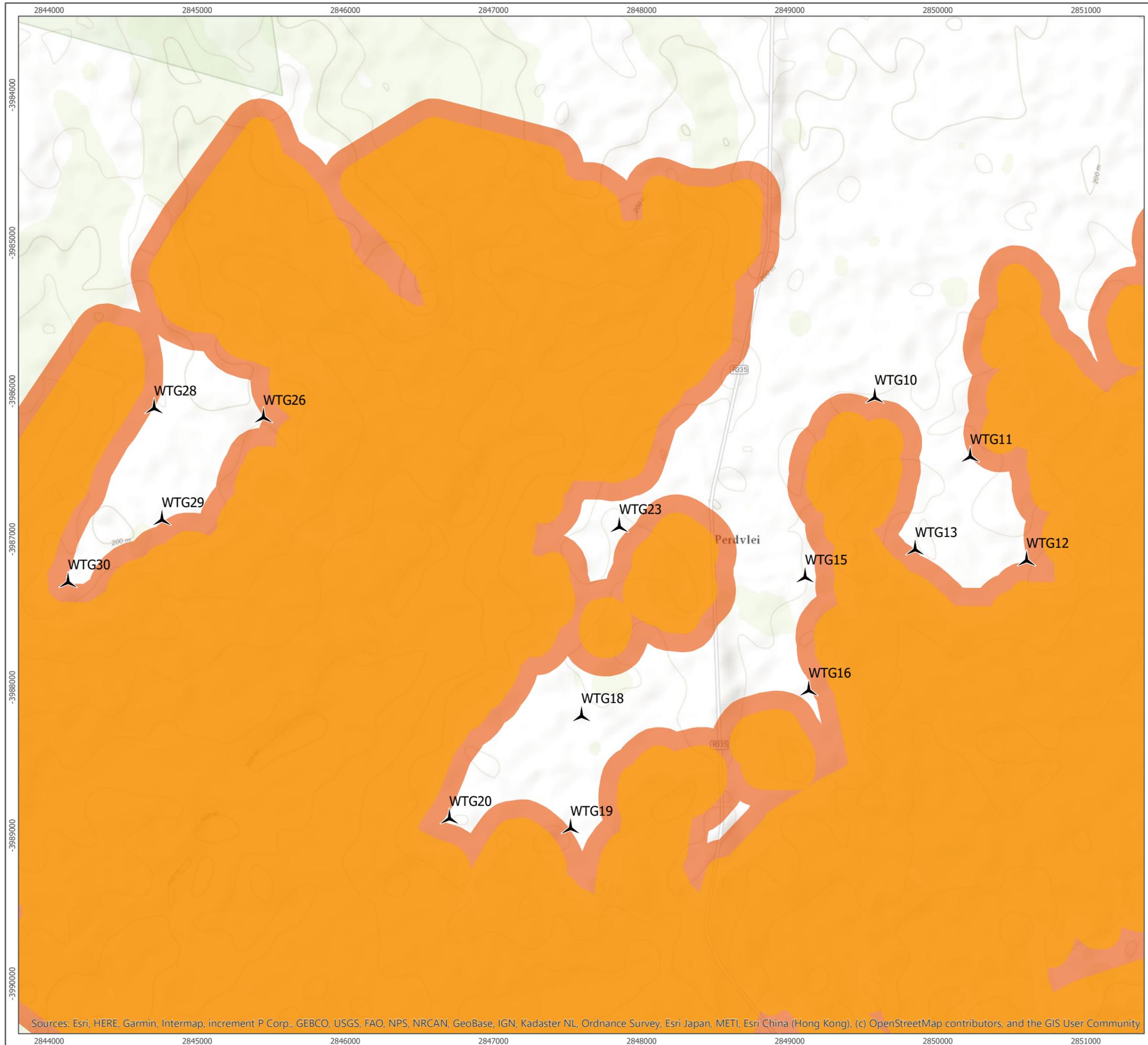
7 CONCLUSION

There have been no significant changes to bat habitats since the completion of the original EIA in 2012 and it is likely that the bat community composition has not changed either. However, land use has changed appreciably through the construction and operation of the Grassridge WEF. While this may result in a shift of bat activity away from these turbines, and potentially towards the area proposed for the Motherwell WEF, increasing potential risk to bats, the post-mitigation impact of mortality assessed and rated as moderate still remains. Cumulative impacts could be higher than previously assessed and this has required an increase in the bat buffers from 100 m to 223 m. No turbines are located within the bat buffers. Residual impacts should be managed by using curtailment as described in the pre-construction bat monitoring report and this must be included in the EMP and the EA. If these mitigation measures are adhered to, the specialist accepts the proposed amendment to increase the EA validity.

8 REFERENCES

Millon, L., Colin, C., Brescia, F., and Kerbiriou, C. 2018. Wind turbines impact bat activity, leading to high losses of habitat use in a biodiversity hotspot. *Ecological Engineering* 112:51-54.

Mitchell-Jones, T., Carlin, C., 2014. Bats and Onshore Wind Turbines Interim Guidance, In Natural England Technical Information Note TIN051. Natural England.



-  Turbine Layout
-  Current Moderate Sensitivity Area (100 m Buffer)
-  Updated Moderate Sensitivity Area (223 m Buffer)



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Bat Sensitivity Map
Figure 1

Motherwell Wind Energy Facility
EA Amendment Report
Bat Assessment

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community