

## APPENDIX 8.5 CUMULATIVE COLLISION IMPACTS ON GOLDEN PLOVER

8.5.1 This report has been produced following consultation with Natural England and RSPB prior to submission of the Heckington Fen Wind Park planning application. Its aim is to address cumulative collision risk to wintering populations of golden plover in the Heckington Fen area in combination with surrounding wind farm developments.

8.5.2 Ornithological assessments undertaken for other wind farm applications in the region have been reviewed (Table 1). Techniques to assess the potential impact of wind turbines on bird populations have developed significantly in recent years, as has the amount of data collected on each site. On some older sites, only limited bird surveys were required by statutory agencies.

**Table 1: Golden plover impact assessments undertaken on other wind farm developments in the Heckington Fen area**

Wind farm	Location	Distance and direction from Heckington Fen	Number of turbines	Status	Assessment of impact on golden plover
Orby Marsh	Lincolnshire	42km northeast	9 x 1.3MW	Refused on landscape grounds. Re-submission.	2 VPs, 72hrs observations: Collision risk (99% avoidance) estimated 0.09 - 0.22 casualties pa depending on exact turbine location (VP observations didn't cover total area of wind farm).
Baumber	Lincolnshire	28km north	18 x 2.3MW (Entag)	Refused on appeal on landscape grounds.	2 VPs, 84hrs observations: Collision risk (99% avoidance) estimated 0.225 casualties pa.
Fen Farm	Conisholme, Lincolnshire	52km northeast	20 x 0.8MW (Ecotricity)	Operational	Breeding bird and walkover surveys only.
Fen Farm II	Conisholme, Lincolnshire	52km northeast	5 x 0.8MW (Ecotricity)	In planning	1 VP, 144hrs observations: Collision risk (99% avoidance) estimated 3.4 casualties pa
Bambers Farm	Mablethorpe, Lincolnshire	48km northeast	10 x 0.6MW 6 x 0.8 MW (Ecotricity)	Operational	Only walkover survey conducted for phase I. For phase II 40hrs VP

					observations: Small number of golden plover recorded. No collision risk modelling
Hollies	Near Skegness, Lincolnshire	34km northeast	2 x 1.3 (Spencer Renewables)	Operational	No information found.
Bicker Fen	Near Donington, Lincolnshire	9km southeast	13 x 2MW (Wind Prospect)	Operational	Only 2 breeding bird surveys conducted in 2002. After consultation with NE & RSPB, agreed no wintering bird surveys required.
Red House	Gedney Marsh, Lincolnshire	29km southeast	6 x 2MW (Wind Prospect)	Operational	Confidential report submitted relating to all species on Schedule 1 of the Wildlife & Countryside Act. Report concluded that impact of wind turbines on birdlife through collision negligible and not significant for one species and verylow/negligible for the other.
Deeping St Nicholas	Near Spalding, Lincolnshire	28km south	8 x 2MW (Fenland Windfarms)	Operational	No Information found.
Vine House	Part of Deeping St Nicholas	28km south	3 x 2MW	Operational	No information found.
Billingborough	Lincolnshire	14kmsouthwest	17 x 2.5MW	Pre-submission	Surveys not completed
Total (operational)			<b>62</b>		
Total (others)			<b>49</b>		

8.5.3 The extent and quality of previous assessments is very variable. Nevertheless, some assessment of cumulative future collision impact of wind farms on wintering golden plover can be made using existing information and, for those sites where no collision risk assessment has been undertaken, using the Heckington Fen data.

- 8.5.4 Assuming wintering golden plovers are distributed similarly over suitable potential farmland wind farm sites from the Nene Washes to the Humber Estuary, and the collision risk per turbine is the same as calculated for Heckington Fen, then (assuming a 99% avoidance rate), overall mortality of existing operating wind farms combined is estimated at 45 birds pa and for those currently refused or in planning 33 birds pa. Actual avoidance rates are likely to be much higher than 99% so these estimates are likely to indicate a worst-case scenario.
- 8.5.5 Most recently, the British wintering golden plover population has been estimated at 576,320 birds<sup>1</sup>. Such potential fatality rates therefore represent 0.008% of the national population for operational wind farms in the Heckington Fen area and 0.006% for those currently refused or in planning.
- 8.5.6 There are six key golden plover wintering sites in the Heckington Fen area which support c.100,795 birds (Table 2).

**Table 2. Key golden plover wintering sites in region around Heckington Fen proposed wind farm site**

<b>Golden plover key sites in Eastern England</b>	<b>5-year peak mean 2004/05-2008/09</b>
Humber Estuary SPA	46,926
Wash SPA	31,620
Nene Washes SPA	7,030
Lower Derwent SPA	5,888
North Norfolk Coast SPA	4,982
Ouse Washes SPA	4,349
<b>Total</b>	<b>100,795</b>

- 8.5.7 The above potential fatality rates therefore represent 0.04% of the regional SPA populations for operational wind farms in the Heckington Fen area and 0.03% for those currently refused or in planning. Again it should be emphasised that these are worst case scenarios. Furthermore, it is likely that the majority of birds frequenting the existing and proposed wind farm sites are not part of the SPA populations.

<sup>1</sup> Jackson, S.F., Austin, G.E. & Armitage, M.J.S. (2006). Surveying waterbirds away from major waterbodies: implications for waterbird population estimates in Great Britain. Bird Study (2006) 53: 105-111.