GORDONBUSH WINDFARM

ENVIRONMENTAL STATEMENT

FURTHER INFORMATION (2)

NON-TECHNICAL SUMMARY

SEPTEMBER 2006

A. INTRODUCTION

In June 2003, Scottish and Southern Energy applied for consent under section 36 of the Electricity Act 1989 for a 35 turbine windfarm at Gordonbush, near Brora, Sutherland. The application was accompanied by an Environmental Statement.

Further Information was submitted in April 2004 to address issues raised by SNH, RSPB and the Highland Council.

This second volume of Further Information seeks to address residual issues relating to birds, by means of an expanded and revised assessment of effects on ornithological issues (Part B), supplemented by a proposed outline habitat management plan (Part C). In addition, although not specifically requested by any statutory consultee, a peat stability assessment is included (Part D).

This is the Non-Technical Summary of the Further Information.

B. BIRDS

The purpose of Part B is to address the outstanding concerns of SNH and RSPB with respect to birds. The report aims to combine all the relevant information provided to date together with the results of further literature research, the 2004 survey and the 2005-06 survey. A reassessment has then been made of the impacts based upon all this information.

Summary of Impacts on Golden Plover

The wind farm has the potential to impact on breeding golden plover as a result of habitat loss, disturbance and collision risk.

- The assessment indicates that the reduction in habitat within the wind farm area will comprise a very small percentage of the home range of each bird and is not expected to have any significant impact on the breeding population.

- A review of literature on golden plover behavioural and population responses, and limited monitoring data from a wind farm at Ovenden Moor indicate that golden plover is unlikely to be adversely affected to more than a minor extent by disturbance from the construction and operation of the Gordonbush wind farm. However, the assessment has assumed that effects will occur and on this basis, some 0.1-0.9% of the regional population (*ie* within the Caithness and Sutherland Peatlands NHZ) could fail to breed during the one year construction period and 0.1-0.6% during operation.

- Modelling of collision risk has proved difficult for golden plover due to the lack of good data on input variables. Nevertheless an estimate has been made of the possible mortality as ranging between 0.3 and 6.2 birds per year, with a mid range estimate of 2.3 birds per year, or 7.5 to 155 mortalities over the 25 year operating life of the wind farm. Over the 25 year life of the farm this additional mortality is judged as unlikely to affect the nature conservation status of the regional golden plover population of 2,950 pairs.

Although habitat and disturbance impacts are not predicted to be of more than minor significance for golden plover, Scottish and Southern Energy will undertake measures to mitigate any impacts

that could occur. These will include the implementation of a wider area Habitat Management Plan, which has been drawn up in outline (Part B) and will be developed further, in consultation with SNH and RSPB. It will be aimed at improving and extending breeding and feeding habitat off-site. Measures to improve breeding habitat on-site will also be taken but these will only be continued if it is demonstrated that birds breeding within and adjacent to the site are not adversely affected by collision risk. In addition commercial forest plantation will be cleared offering the potential for short term reduction in predation in areas near plantations and longer term breeding habitat creation.

A programme of research has commenced at Gordonbush to address the lack of scientific information on the interaction of golden plover and wind farms. The timing of implementation of some of the offsite measures set out in the HMP will be agreed in consultation with SNH and RSPB, to ensure that the research programme is not confounded.

The measures proposed as part of the HMP will also contribute to mitigation of collision risk but this will be further addressed by monitoring during the early years of operation to establish whether collision mortality is occurring. If this is found to be the case Scottish and Southern Energy will implement a programme of turbine shut down during the commuting changeover periods.

During construction an ornithologist will be regularly present on site to observe the reactions of birds to the construction work. Scottish and Southern Energy will liaise with SNH prior to construction, to programme the works so as to minimise disturbance at sensitive times and locations. Site wide activities such as traffic will be managed to limit the potential for disturbance.

Summary of Impacts on Merlin

A range of surveys have been undertaken at Gordonbush between 2002 and 2006 including breeding bird surveys and nest searches that have extended to a radius of 2 km from the wind farm site. In addition, there have been vantage point watches, but merlin is notoriously difficult to record in these surveys, and is likely to be under recorded. Merlin was not recorded at Gordonbush in the 2002 surveys, but was recorded at one site in 2003 and one in 2004. Evidence from prey remains gathered in 2006 suggested three territories were occupied with nest sites, one of which was located within the Caithness and Sutherland Peatlands SPA. The other two were to the north east and south east of the wind farm respectively.

There was no evidence of successful breeding in any of these years.

On the basis of these surveys it has been assumed that the general area normally supports one breeding pair each and that the nearby area of the SPA supports one breeding pair every four years.

SPA Birds

The potential nest site in the SPA is sufficiently far away from the nearest turbine for the birds not to be disturbed whilst on the nest. Merlin may, however, be displaced from parts of their foraging areas during the construction period, including from up to a quarter of their core foraging area. This will be short term and a number of factors are presented which may reduce the impact, including the fact that merlin do not appear to occupy the area every year and have not been observed to breed successfully during the survey years. At most the impact could be breeding failure of one pair, or a reduction in their breeding success, in one season. Surveys for SNH have also found that the status of merlin within the SPA has remained favourable over this period, suggesting that the worst case of failure of one pair of merlin to breed in one season

would be unlikely to affect the viability and distribution of the SPA population or the integrity of the SPA.

Once operational some displacement of merlin from their foraging range may occur, however, the proportion of the habitat lost, especially within their core range is likely to be small (approximately 1.5%), and habitat enhancement / creation is proposed to help offset this loss. These impacts are not predicted to affect the viability of the population or its distribution within the SPA. Recent monitoring for SSE at their operational Tangy Wind Farm has also recorded merlin foraging between the turbines (*pers comm* Simon Lawrence, 2006), suggesting that the species may not be greatly affected by the operating turbines, and hence the impacts may be less than described above.

A collision risk assessment has identified the pursuit of aerial prey as the main activity at risk of collision. Other foraging techniques such as low level attack and other types of flight activity are not identified as at significant risk of collision. The results can only be indicative given the considerable uncertainties in the analysis, but provide an order of magnitude for collision risk taking into account the range of factors that are likely to influence it. The loss of at most 0.1 birds a year from the SPA population comprises a very small impact on population (0.1%), and adds only a small percentage to the annual mortality (0.2 – 0.3%). The impact of collisions on merlin is not predicted affect the long term viability of the merlin population of the SPA.

Wider Countryside Birds

Nest site A is the closest of the wider countryside nest sites to the wind farm being approximately 1km from the nearest turbine, approximately 175 m from the access track, 400 m from the proposed construction compound, and 500 m from one of the borrow pits. If disturbance did cause nest site A to be abandoned the pair could still locate in another nesting area (other potential areas have been identified), and would not necessarily lead to failure to breed.

Displacement from the pair's foraging area during construction may occur as between 17-39% of the birds' foraging range may be affected. This may result in failure to breed or reduced breeding success, although successful breeding has not been recorded throughout the survey period. Such an impact is likely to occur for one season. The failure of one breeding pair from the NHZ population (125 pairs) for one season is not predicted to affect the nature conservation status of the NHZ merlin population.

Once operational the effects of displacement will be less than during construction. Between 1.25 and 2.6% of the foraging area within the bird's core range could be affected. There is evidence of merlin foraging within wind farms elsewhere and it is unlikely that any displacement caused by operations at Gordonbush will affect bird survival or breeding success.

There will be a very small increase in the annual mortality of the NHZ population (0.32 – 0.5%) as a result of loss of at most 0.4 birds per year to collisions. The impact on the species will be minor and the viability of the merlin population in the area is unlikely to be affected.

Collision risk and displacement from habitat are not cumulative as if the birds are displaced from the wind farm, they will not be at risk from collision with turbines.

Mitigation Proposals

Although impacts on merlin are all identified as of minor significance, Scottish and Southern Energy will undertake a range of measures to benefit merlin. If any nest site is occupied in the area immediately prior to or during construction, measures will be agreed with SNH and implemented to minimise the risk of disturbance and loss of foraging habitat. The proposed Habitat Management Plan will include longer term measures to encourage habitat enhancement

and merlin prey species such as meadow pipits to nest in the wider area. The plan includes for a significant reduction in deer numbers along with muirburn to help promote heather moorland. Existing forestry plantations will be cleared and broken up to provide open habitat which is likely to be colonised by meadow pipits, a key prey species of merlin. Some forest edge habitat will be retained as merlin is known to forage along these edge habitats. Open woodland will also be allowed to regenerate as part of the development of a mosaic of habitats which are favoured by meadow pipits.

Impacts on Golden Eagle

The Gordonbush Wind Farm lies approximately 3km west of a known golden eagle eyrie and has the potential to impact on a territorial pair using this nest site. Although the territory is not currently occupied by a territorial pair, a pair was thought to be present during the early surveys in 2002. For the purposes of this assessment it has been assumed that a territorial pair would be present during the lifetime of the wind farm. This pair is part of the population of the Caithness and Sutherland Peatlands NHZ, but is not part of the Caithness and Sutherland Peatlands SPA, and hence the birds are 'wider countryside' birds. The surveys in 2005-2006 did not record any territorial birds but did record non-territorial birds on and around the wind farm site, and these too are considered in the assessment.

The main effects are likely to be from displacement from foraging habitat if the birds stay away from the wind farm, or from collision risk if they are not deterred and fly into the wind farm cluster. Evidence from the operating Beinn an Tuirc Wind Farm in Argyll has found the eagle pair there to stay away from the wind farm rather than fly into it, however it is uncertain which has had the greater influence -the measures implemented as part of the Habitat Management Plan (HMP) to draw the birds away from the wind farm, or the effects on the birds of the operating turbines.

In the event that the birds exhibit a similar behavioural response to those at Beinn an Tuirc and are displaced from foraging habitat, they will lose an area which is predicted to account for approximately 2% of their ranging within their home range (see *Section 5.8.3*). Such a loss is considered to have an impact of only minor significance. The comparison of ranging predicted by the PAT model with the use of the site from observed flights suggests that the PAT model may have underestimated the ranging of the territorial birds. Even if this is the case and 4% (*ie* double the predicted loss) is affected, the significance of the impact will still be minor.

The survey findings have recorded a territorial pair present during the breeding season and non-territorial birds present during the winter months. This makes it difficult to ascertain the collision risk to a territorial pair throughout the year (see *Section 5.9.5*).

The additional loss of 0.1 territorial bird per year from collisions is predicted based on flight activity recorded during the breeding season at Gordonbush [(1)]. This equates to one bird every 10 years, or 2.5 birds over the life of the wind farm. This will add little to the natural mortality and is not envisaged to affect the nature conservation status of the species nationally.

At a regional level the predicted collisions with the wind farm will increase the annual mortality of the adult eagle population in the NHZ by adding a further 2.5-3.3% to that which already occurs. An increase of this level in the annual mortality in a regional population which is in an unfavourable status may increase the difficulty of reversing the decline. However, mitigation measures will be implemented which seek to reduce the risk of collisions occurring.

(1) This is based on 98% avoidance, weighted, breeding, and 2km visibility cut off..

Whilst the possible collision risk to non-territorial birds has also been predicted to be approximately 0.1 birds per year (see *Section 5.9.4*), it is not possible to quantify the impact of this possible loss as the numbers of such birds at all geographic levels are unknown.

The moderately high collision risk does not reflect the ranging behaviour predicted by the PAT model, however, this may be due to the PAT model predictions being based on territorial behaviour, and much of the flight activity being related to non-territorial birds. Other factors may include atypical flight records, with many of the flights occurring on a small number of days, and the expectancy of the birds finding particular food sources at certain times of the year including fox cubs and deer gralloch.

Scottish and Southern Energy is seeking to reduce the risk of collisions by the implementation of measures as part of the HMP, which has been developed in outline at this stage and will be developed further by Scottish and Southern Energy and the Gordonbush Estate in consultations with SNH and RSPB. Whilst the Gordonbush and Beinn an Tuirc Wind Farm sites are very different, the aims of the mitigation proposed are similar, and draw on the findings at Beinn an Tuirc described earlier. The HMP will seek to increase the amount of live prey for golden eagles through improving the habitat for the eagles' prey species including red grouse and mountain hare. This will be achieved through a significant reduction in the number of deer on the Gordonbush Estate, combined with development of a programme of muirburn and predator control. Based on a review of grouse shot, the habitat in areas surrounding the wind farm site, particularly to the south east appeared to support more red grouse. It is therefore expected that the habitat enhancement measures will have a greater increase in the number of live prey in areas away from the wind farm.

On the assumption that a similar response by eagles will be seen at Gordonbush, although the exact reason may again be unclear, the predicted collision risk will not occur, as the birds will avoid the wind farm. As the collision risk is the main issue at Gordonbush such a response would remove this concern. The habitat enhancement measures have been drawn up to help in this respect by encouraging live prey in habitats away from the wind farm, but within the expected territory of the nearest nesting pair.

The potential for cumulative impact from Gordonbush with other windfarms is not considered to be of concern for golden eagles.

Collision Risk to Other Wider Countryside Bird Species

No significant collision risk has been identified for hen harrier, dunlin, greenshank, peregrine or skylark. Hen harrier flights are typically low and monitoring on operational wind farms is recording them co-existing with the wind farms without collisions. The numbers of dunlin and especially greenshank are low, and the flight activity by peregrine was also very low and unlikely to generate significant collision risks. Skylarks are likely to be displaying during clear conditions and would be able to detect and avoid operating turbines.

Impacts on the Caithness and Sutherland Peatlands SPA

The assessment has concluded the following:

- Many of the qualifying interest species of the SPA were not present on or in the immediate surrounds of the Gordonbush Wind Farm, largely due to the absence of suitable habitat. This includes red and black throated diver, wood sandpiper , short-eared owl, common scoter and wigeon. Effects on these species are not predicted.
- The other species which are part of the qualifying interest of the SPA were all recorded during the surveys, however, only merlin was considered likely to be affected by the wind

farm proposals. All records of hen harrier and golden eagle were of wider countryside birds and not part of the SPA populations of these species. The assessment concluded that no effects are likely on the SPA populations of golden plover and dunlin, as they were considered not to use the Gordonbush site or fly cross it.

- Impacts on merlin within the SPA are likely to occur, including during construction and operation (from displacement or collision risk), however the assessment has not predicted effects on the conservation objectives for this species.

- The wind farm proposals are therefore, not predicted to affect any of the conservation objectives for the bird species within the SPA and will not affect the integrity of the Natura 2000 site.

A Habitat Management Plan has been drafted for the land within the Gordonbush site and within other parts of the Gordonbush Estate outwith the site. Whilst this will largely assist wider countryside birds it will also include areas which lie within the foraging range of the merlin within the SPA. It is proposed, that where possible, land will be managed so as to provide suitable foraging ground for species post construction. Further information regarding the HMP is provided in *Chapters 3, 4* and *5*. The proposed Habitat Management Plan will include longer term measures to encourage habitat enhancement and merlin prey species such as meadow pipits to nest in the wider area. The plan includes for a significant reduction in deer numbers along with muirburn to help promote a mosaic of heather moorland and grassland. Existing forestry plantations will be cleared to provide open habitat which is likely to be colonised by meadow pipits, a key prey species of merlin. Some forest edge habitat will be retained as merlin is known to forage along these edge habitats. Open woodland will also be allowed to regenerate as part of the development of a mosaic of habitats which are favoured by meadow pipits.

C. OUTLINE HABITAT MANAGEMENT PLAN

Part C sets out outline proposals for a habitat management plan for Gordonbush Estate

The plan extends over the whole Estate, and aims to improve several aspects of biodiversity, including moorland / peatland, birdlife, and native woodland. The plan specifically incorporates measures proposed to mitigate potential adverse effects on three bird species, namely golden plover, merlin and golden eagle, which are described in the Part B.

The principal specific management actions proposed are:

1. A significant reduction in deer on the Estate
2. Removal of coniferous forestry plantations
3. Improved moorland / heather management
4. Blocking of drains in peatland
5. Low intensity cattle grazing
6. Native woodland management

These actions are intended to result in a number of habitat improvements, with consequential benefits for the species that they do, or could, support, including:

1. Golden eagle
2. Golden plover
3. Merlin
4. Peatland habitats
5. Native woodland species
6. Black grouse

The plan draws upon, and is consistent with both the Sutherland Biodiversity Action Plan, and The Peatlands of Caithness & Sutherland Management Strategy 2005-2015, to which specific references are made.

The final detail of the plan would be agreed with Highland Council, SNH and RSPB, and would be kept under review, in particular in light of monitoring.

D. PEAT STABILITY ASSESSMENT

The site is situated on the western sloping hillside and comprises an area of open upland moor vegetated with short grasses and heather. The ground surface of the whole site generally slopes gently westwards and the land is used to support local wildlife including deer and grouse.

The superficial deposits at the site are recorded to comprise peat and peaty topsoil overlying a thin layer of glacial till. Bedrock is recorded close to surface over much of the site. The site is incised by a number of small burns which drain the site predominantly to the southwest. The topography of the main windfarm site area ranges from approximately 400mAOD in the northeast to 280m in the south western area in the vicinity of the watercourse Allt nan Nathraichean.

In general the thickness of peat is recorded to range from 1.00m to 2.00m across the site with some localised areas of deeper peat in the order of 3.00m in thickness. At the site, peat hags, peat pipes, localised subsidence holes and localised historical slumps are noted.

The risk of peat instability at the site overall is generally considered to be low. However, localised areas are considered to present a moderate risk associated with the deeper peat deposits and the close proximity of watercourses.

It is considered that the use of appropriate drainage design and adoption of suitable construction methodologies in particular in areas identified as being of moderate risk will reduce the risk of failure.

It is recommended that a Stage 2 peat stability assessment should be carried out as part of the intrusive investigation for the proposed development to confirm the findings of this non-intrusive investigation.